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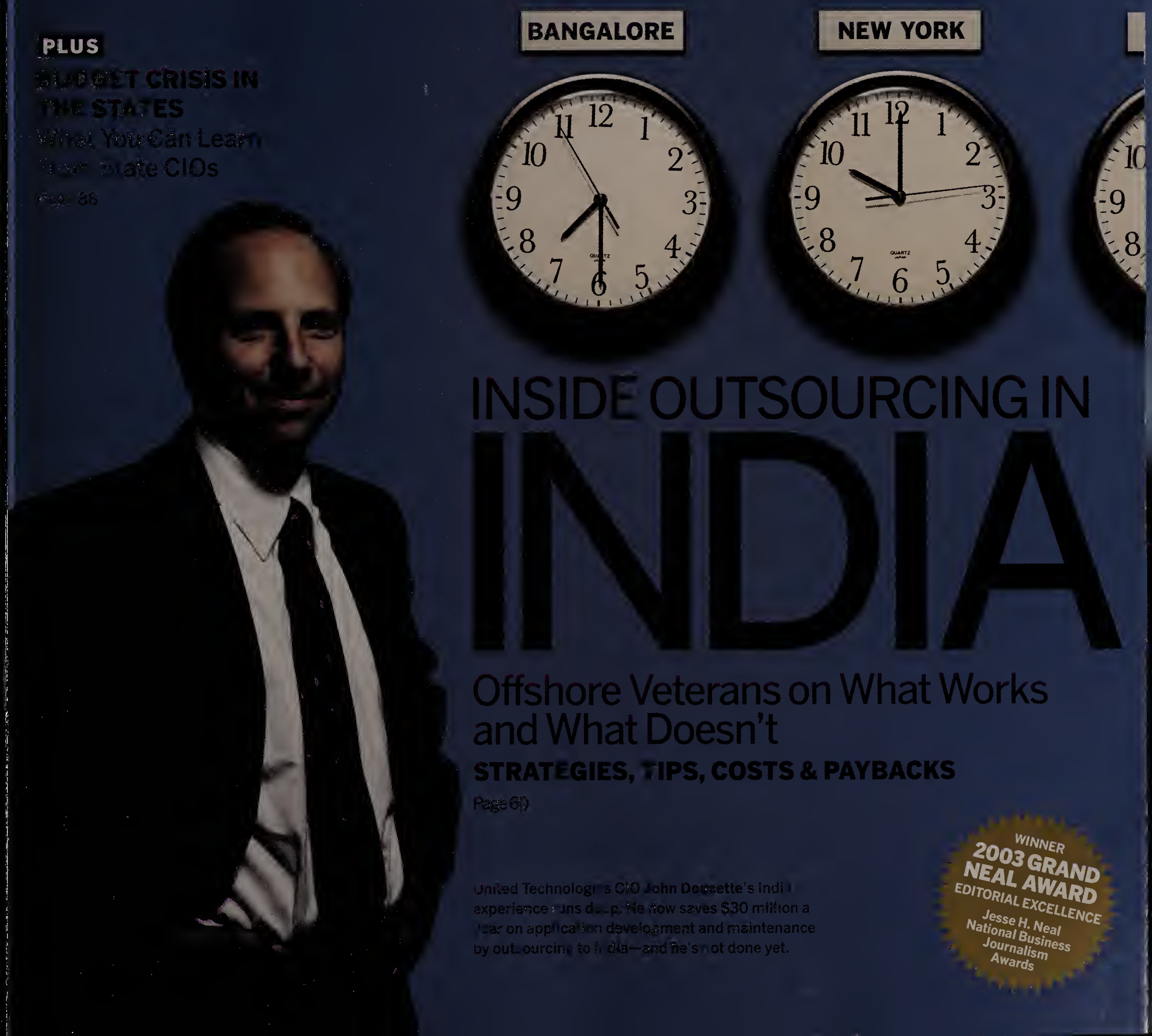

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United Technologies' CIO John Doucette's India experience runs deep. He now saves $30 million a year on application development and maintenance by outsourcing to India—and he's not done yet.

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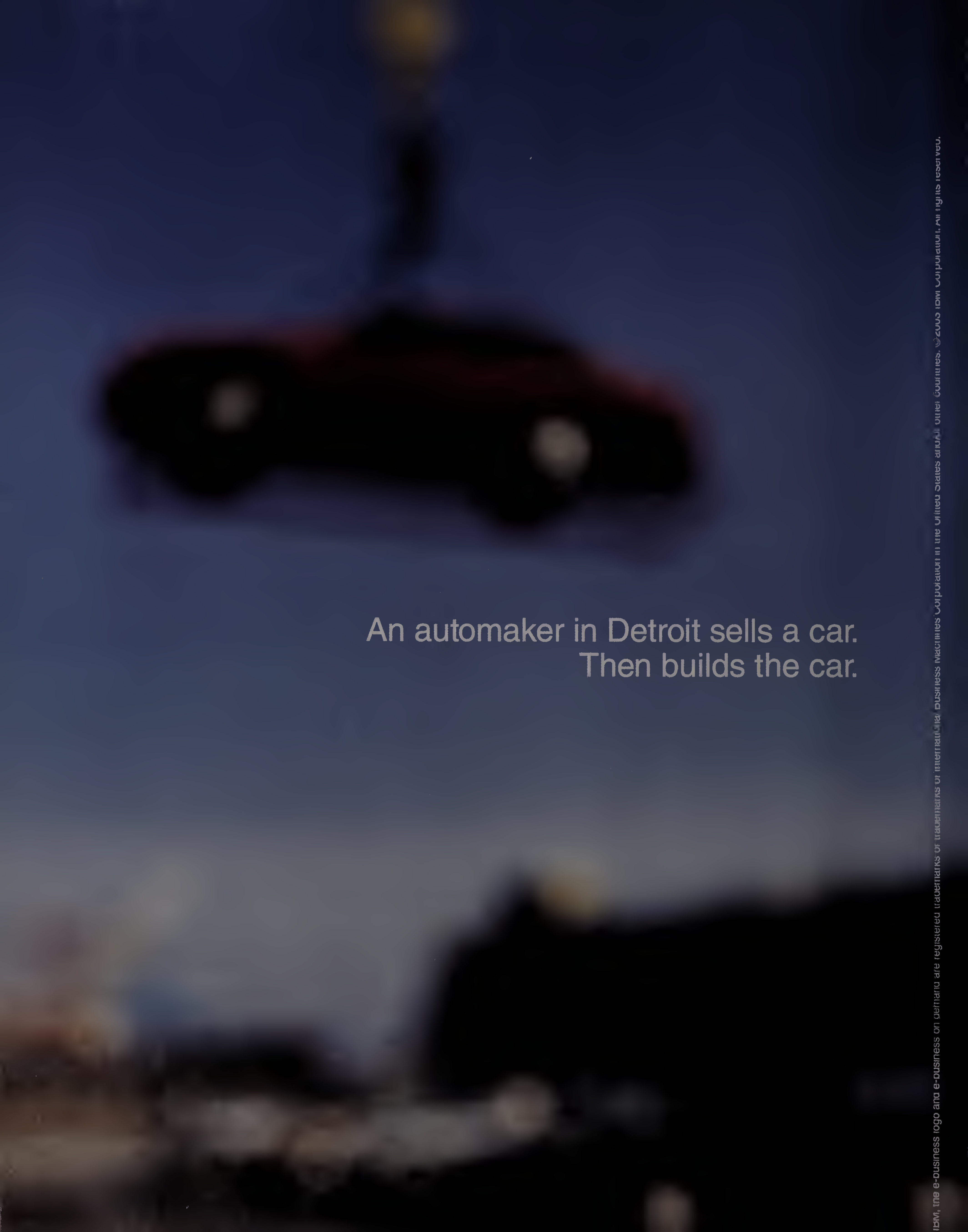

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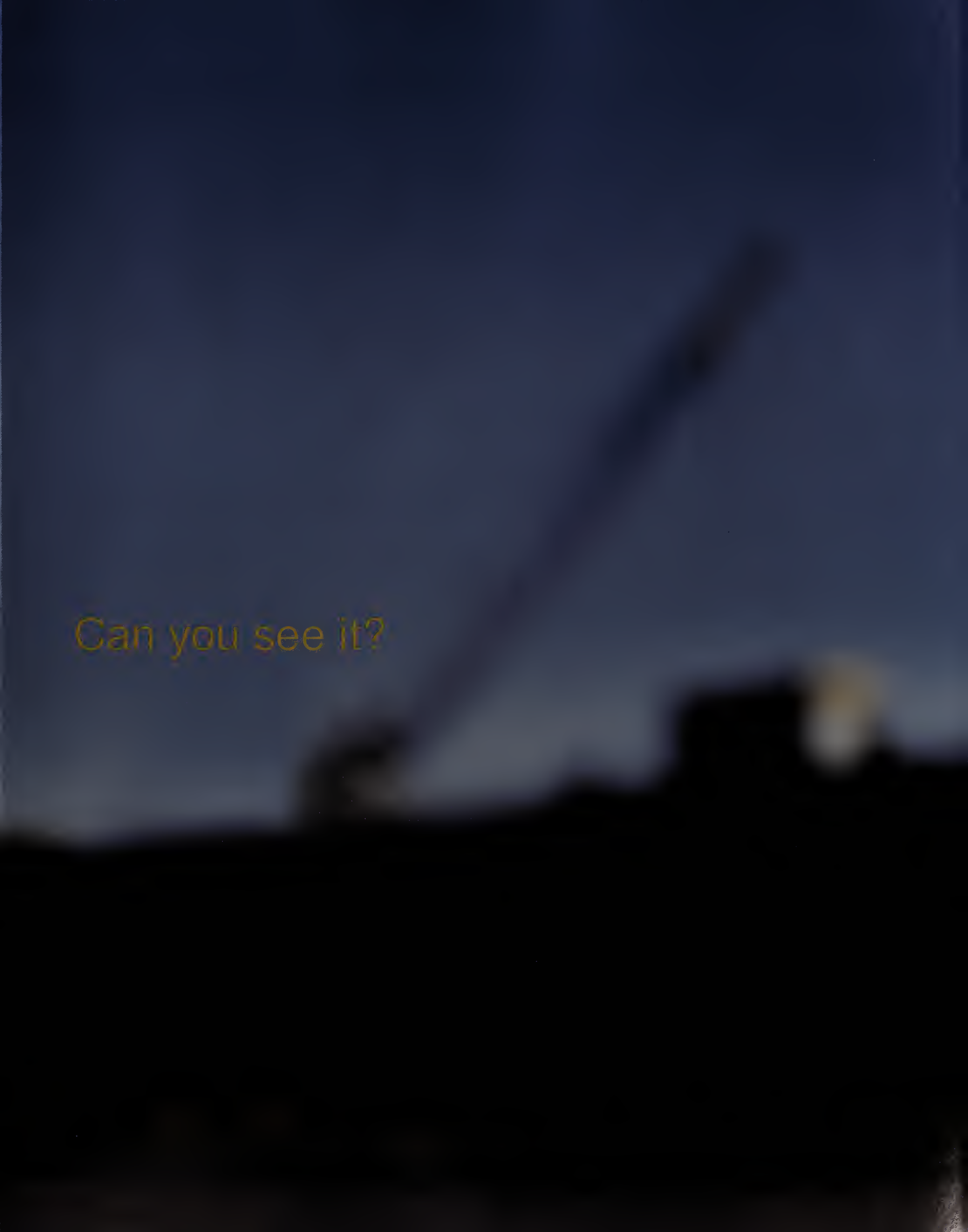

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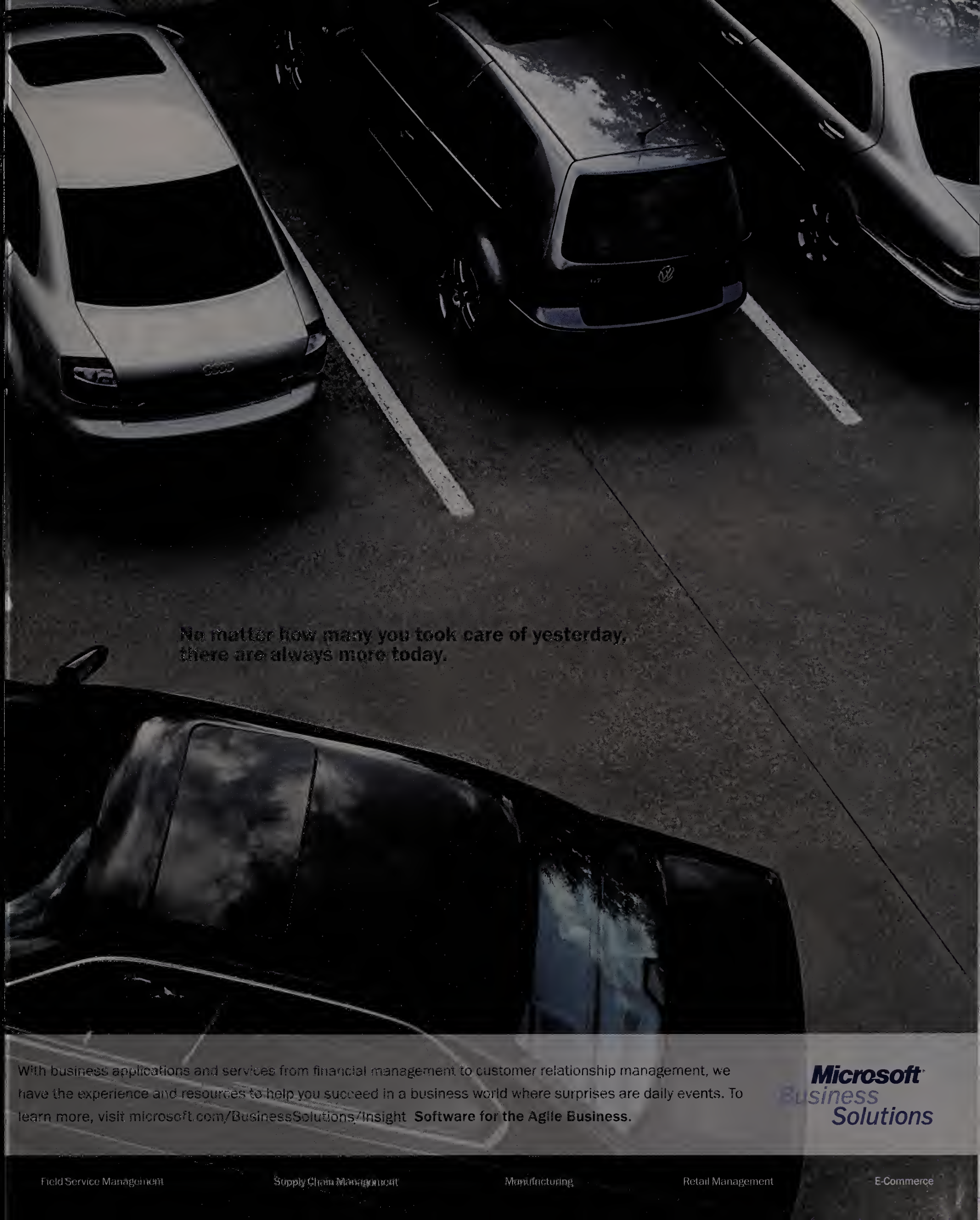
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> **"Unfortunately, few mentors are secure or reflective enough to share their mistakes in a way that could benefit others."**
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> –Susan H. Cramm, Hot Seat columnist, on learning from other CIOs' mistakes Page 114

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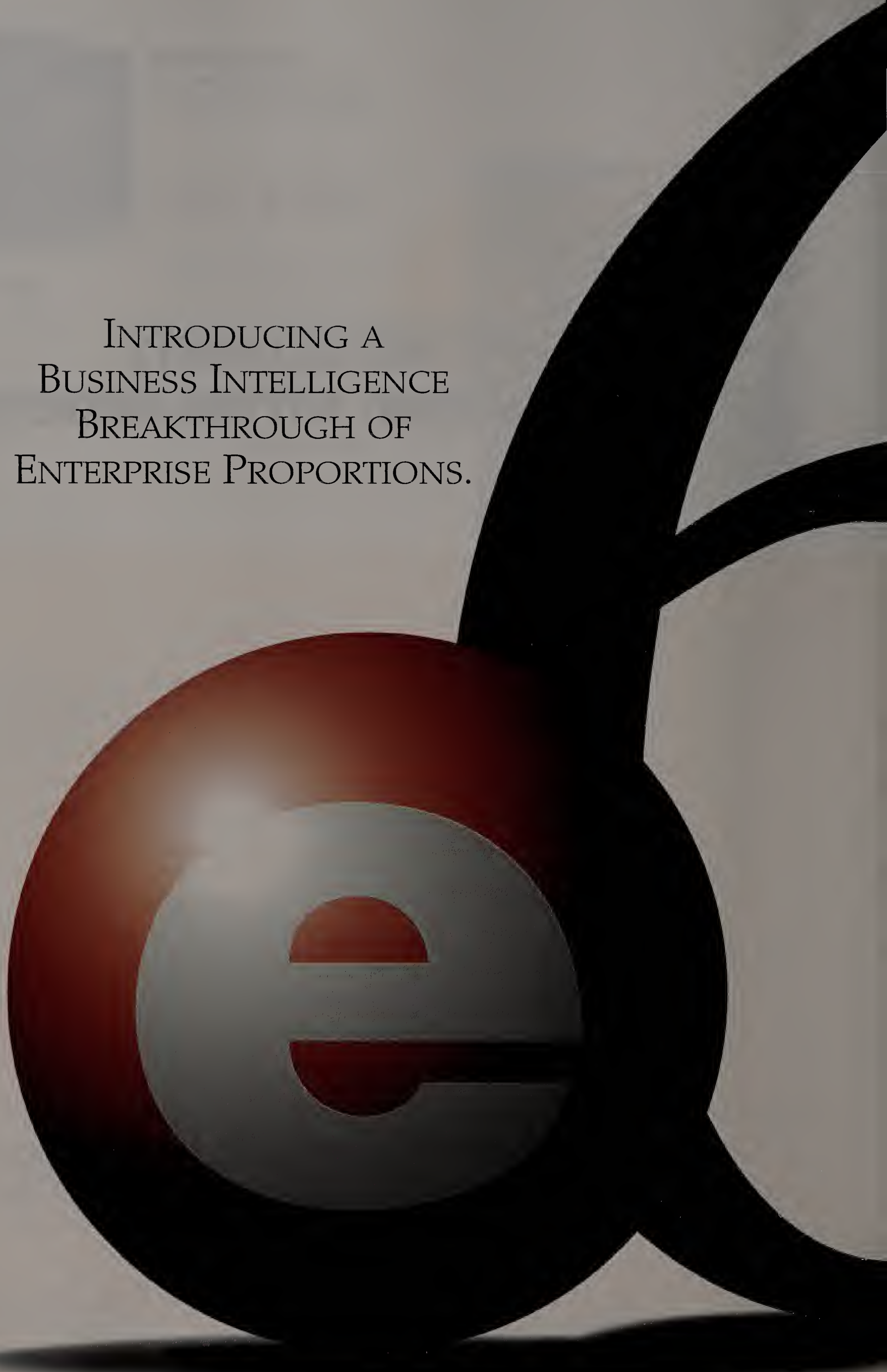

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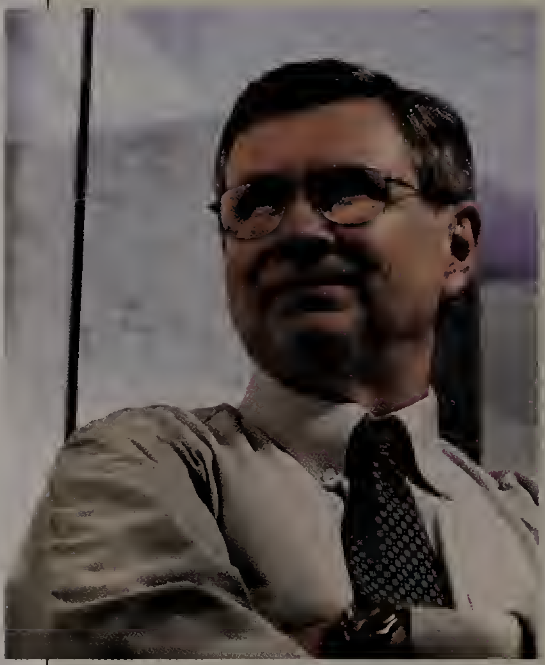

David Wood, director of systems development at Otis Elevator

ASK THE SOURCE

David Wood *knows* outsourcing.

If you want the inside scoop on the ins and outs of outsourcing to India, the man to talk to is David Wood (see **Inside Outsourcing in India**, Page 60). The director of systems development at Otis Elevator has a decade of India-based outsourcing experience under his belt. Among his hard-learned lessons: pair offshore developers with someone at the home office, and define all-important processes *first*. For the next two weeks, you can pick his brain for more lessons. If you're thinking about outsourcing to India, we'd recommend you grill Wood first. Go to **www.cio.com/ask**.

ADD A COMMENT

Give us your 2 cents.

If one of the feature stories or columns in this issue gets your goat, let us have it—your opinion, that is. On every feature and column online, you'll now find a feedback form to post your comments. Don't be shy: Tell Tom Davenport what you think about improving knowledge processes (see **A Measurable Proposal**, Page 46), tell us if the state of Iowa's scoring system makes sense (see **Case Files: R.O.Iowa**, Page 99), or offer advice to state CIOs who are scraping by (see **Dire States**, Page 88). Find the story links at *www.cio.com/current*, then look for the **ADD A COMMENT** box at the bottom of the page.

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What's In Store

These items in the CIO Store (*www.theciostore.com*) relate to features in this issue. Check them out.

▸ **Offshore Outsourcing: Navigating the Opportunities and Risks**
This CIO Focus on offshore outsourcing covers the pros and cons, analyzes the trends, examines what the countries have to offer, and provides insights for dealing with the vendors and brokers.

▸ **IT Value: Measurement Tools and Techniques That Work**
This CIO Focus guides readers through the most reliable methods and metrics, and shows how IT executives at top companies are meeting the challenge to demonstrate value.

Peer Resources

CIO's sister publications give you more on subjects covered in this issue.

▸ **No Tolerance for High Maintenance** (see Page 80) scrutinizes the revenue that vendors pull out of your software maintenance fees. The column **Spin Cycle** on *www.darwinmag.com* offers tips for getting your money's worth out of your vendors.

▸ **Immune Systems** (see Page 72) takes a look at the slow flow of bioterror information. But assuming the network works, how will we find out something's wrong? Read **When Disaster Strikes** on *www.csoonline.com* to find out.

Industry experts estimate that up to 70% of system failures can be attributed to cabling issues. The hardware and software that drives a converged network is only as good as the cabling infrastructure that supports the system.

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Rajiv Mistry has spent nearly a decade working in enterprise IT architecture. His expertise entails innovative enterprise information technology architectures using the latest advances in technology, data warehousing, data mining and lifecycle management of integrated product development from seed to market.

UNISYS PRESENTS

ask THE EXPERT

A few minutes with Rajiv Mistry, Director, Data Warehousing & Business Intelligence Enterprise Collaboration, Americas, Avanade Inc.

Enterprise Business Intelligence

> What are the business trends driving enterprise Business Intelligence?

More and more, business professionals require access to real-time business information that flows freely throughout the enterprise. The knowledge worker is no longer a theory; she is running your mortgage refinance process as you talk to her. Telemedicine is no longer an exclusive realm; it can run life support from anywhere globally and deliver decisions and metrics in near real time.

These are the business demands that have given rise to such popular BI applications as CPM (Corporate Performance Management), CRM (Customer Relationship Management), and BAM (Business Activity Monitoring).

To address CPM, BAM and CRM, a thoroughly integrated application architecture envelope must be designed in a manner that allows access to the full range of real time (or operational), tactical and strategic reports in a flexible manner. Applications that were previously unthinkable must become reality to support scenarios like CRM analytics, CPM decision support and BAM-related operational actionability.

> What benefits can companies expect to gain?

There are a number of vital benefits to applying BI within a company, such as the following:

Better decision-making. By accessing necessary information faster and drawing on rich analytical tools to parse the data for vital new insights into issues such as customer buying habits, companies can speed their decision processes significantly, and boost their profits by doing so.

Competitive advantage. Faster decision-making allows companies to deploy new innovations faster, enabling them to get ahead of the competition. Greater agility means being able to maintain this lead.

Customer satisfaction. Customers are always more satisfied when their needs are filled quickly. This happens when execution of internal processes is faster, more efficient and accurate, and when fulfillment of product requests and service requests is done with a greater speed, accuracy and finesse.

Single version of the truth. While most companies talk of getting to a single version of the truth, the fact is there are at least three different ways of perceiving the truth: strategically, tactically and operationally. A reporting scenario that forecasts a viable strategic direction, creates analytic drillable reports and reveals defects in real time would support a single version of the truth.

> What are the main inhibitors to success?

The main barrier to mainstream acceptance of BI has been the fact that it was previously deemed to be complex to use, requiring specialized skills to read a report and figure out trends. Moreover, the time gap resulting from processing delays could lead to stale data in reports, thus keeping BI out of the acceptable norm in corporate decision making. The advances in Wintel/SQL Server/Analysis Services drive such inefficiencies out and create a more realistic solution that brings BI to the masses and lets the single version of the truth be within their grasp.

There's also a false perception that BI is slow, ironically driven by delays in IT funding. In spite of the fact that a BI investment can lead to revenue growth, difficult economic times have driven fiscal stringency within the technology department, and BI implementations are no exception.

> How can Packaged Solutions provide benefit for BI?

Packaged solutions invariably need some customization specific to the customer needs. However, even taking this into consideration, the speed of implementation is vastly enhanced compared with a custom built solution. This allows customers to address performance, scalability, integration and cost issues rapidly and achieve very good BI reporting results.

Technologies like the Unisys ES 7000 servers address scenarios that are not possible on scaled-out commodity-driven hardware platforms. Specifically, in bringing high performance to bear on reducing batch cycle time, high concurrency loads and large data volume throughput across many vertical industries, this platform has proven to be very robust and cost efficient.

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From the Publisher

gbeach@cio.com

The Self-Service Economy

Gary J. Beach

AT A RECENT TECH EVENT in New York City, I decided to ride the Big Apple's subway system rather than hail an overpriced taxi. I approached the fare booth, pushed two crisp one dollar bills through the opening and asked the attendant for a coin token.

"Sorry mister, we don't sell tokens at this station any longer," the attendant said as he returned my bills and directed me toward a wall of machines across the subterranean foyer. "You need to purchase a ticket yourself at one of the machines."

With some help from a veteran rider, I bought my paper ticket and continued on my way. As I pondered my ticket experience the next day, I realized I shouldn't have been surprised. Within the past month I had self-service experiences at two department store checkout lines and acquired a boarding pass for an airline flight from a self-service machine, in the process replacing a 30-minute wait in line with a much needed early morning cup of coffee.

Moreover, since last fall I have been zooming up and down the East Coast paying tolls with a plastic automated radio frequency device called Fast Lane. Since 1988, when I first became addicted to ATMs, I can count on my right hand how many bank tellers I have encountered.

Forget about the "new" economy or the "e" economy. Bring on the "self-service" economy. Customers—and for CIOs that means employees, partners and paying customers—are smarter than ever. CIOs themselves are using this newfound customer leverage to wrangle incredible terms with tech vendors as the spending morass continues.

Is your company—and in particular your company's website—ready for the most demanding customers in the coming self-service economy? The economics of self-service are compelling. Gartner claims it costs 24 cents for automated customer service on the Web versus $5.50 to serve a customer on the telephone. How important is fast, convenient service? In a word, *very*. The Forum Corp. reports that 69 percent of customer defections are because of poor service or sales interaction.

As business continues to improve in 2003 and CIOs start to look at their priorities for 2004, examining your organization's infrastructure and how well it holds up to self-service customer requests might be one of the most self-serving things you can do to keep your company ahead of the competition.

And to keep your job.

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Networked Storage Offers Cure for Backup Ills

Sony StorStation™ family of network-attached storage solutions brings backup efficiency and consolidation to organizations of any size.

Many organizations are finding that tape backup systems installed years ago can't keep up with the new business requirements of today. The problems range from having older tape formats with insufficient capacity to dealing with collections of individual tape drives that require significant IT attention to ensure that backups run on schedule. If your backup tasks are growing out of control, there's a good chance that Sony's family of StorStation™ networked backup solutions can bring consolidation and efficiency to your backup processes.

For some organizations, increasing backup operational efficiency can be as simple as upgrading to higher capacity tape drives, such as Sony's Advanced Intelligent Tape™ (AIT) family of reliable data protection solutions. For others, it may mean adding automation, such as tape libraries that automatically manage media cassettes and back up on a scheduled basis. But for more and more organizations, increased efficiency is better achieved by adding dedicated network storage solutions to their networked environment in order to consolidate backup tasks, ensure greater efficiency, and reduce backup management and maintenance requirements.

Network-attached storage (NAS) devices, such as those in the Sony StorStation™ product family, enable organizations to increase efficiency by consolidating multiple backup devices or disk storage devices onto existing Ethernet networks. NAS devices act as centralized backup coordinators that can be configured in a number of ways to suit many business requirements. In the simplest configuration, a NAS server provides shared files or shared network storage for multiple servers. With the proper integrated software, NAS file servers can act as networked caching devices, providing speedy access to frequently used data. And for organizations with a range of network backup or archival requirements, a NAS backup server can route data to an attached tape library, enabling organizations to keep up with increasing backup demands by merely adding additional or higher capacity tape drives. Combining a NAS device with one or more tape libraries brings increased data protection and offers a cost-effective solution for long-term near-line or offline storage.

In addition to increased efficiency and consolidation, automated networked backup solutions can ensure backups are performed on schedule, with limited or no human intervention. The combination of a NAS server and a tape library is a particularly good solution for scenarios such as:

- Centralized backup for remote locations or branch offices that lack on-site IT support;
- Businesses that have outgrown their existing tape capacities;
- Cost-effective disaster recovery for businesses that have many store locations, such as retailers; and
- Departments with multiple servers and growing data requirements.

In the past, it has been cost-prohibitive or too complex for many organizations to deploy networked devices to address such scenarios, but Sony's family of networked backup solutions changes the cost equation. Sony offers two types of NAS solutions: Sony StorStation™ Backup Servers and Sony Stor-Station™ NAS File Servers.

Sony's StorStation™ Backup Servers combine Sony's high-performance Advanced Intelligent Tape (AIT) library with a NAS file server and a leading pre-integrated backup management software solution. The "NAS head" provides network connectivity and backup management, while the StorStation™ AIT library provides the backup capacity, automation and media handling. For environments with growing data protection and archival requirements across multiple application, database or production systems, the StorStation™ Backup Server solution provides a single point for backup consolidation. Moving from a server-attached backup strategy to a networked solution brings cost and efficiency benefits by eliminating the duplicate resources, efforts and equipment required to back up individual servers separately. As the number of servers or the amount of data generated grows, the cost-benefits of a networked backup approach increase.

Sony's StorStation™ NAS backup servers and file servers integrate the best of high-end enterprise storage functionality into solutions that are affordable, easy to use and easy to manage.

The Sony StorStation™ Backup Server, when used with a Sony tape library, is ideal not only for consolidating backups on-site, but also as a component of an overall backup strategy for companies needing to back up or archive data from satellite or branch offices. The StorStation™ Backup Server, when used with a Sony tape library, delivers the capability needed to achieve an unattended backup of several days or even several weeks, depending on the amount of data to be protected. In addition, it can be managed remotely simply by connecting it to the headquarters office via a wide-area network.

Sony's StorStation™ NAS File Servers provide a low-cost solution for data storage consolidation, file serving and file sharing capabilities for small and midsize businesses and enterprise departments. Sony StorStation™ NAS servers are an ideal complement to Sony AIT tape libraries. For organizations with a range of file sharing or network storage requirements, Sony provides NAS server configurations that provide 330 GB to 720 GB of networked storage.

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Sony's StorStation™ NAS backup servers and file servers integrate the best of high-end enterprise storage functionality into solutions that are affordable, easy to use and easy to manage. Whether for remote office, workgroup or data center deployments, all StorStation™ NAS devices are compact, 1U high, rack-mountable units designed to fit neatly into areas where space is limited.

If your business is struggling to manage multiple tape drives spread across your network, or if you need to consolidate your data and make it easily accessible to your networked clients, the time is right for Sony's Network Solutions—the smart investment.

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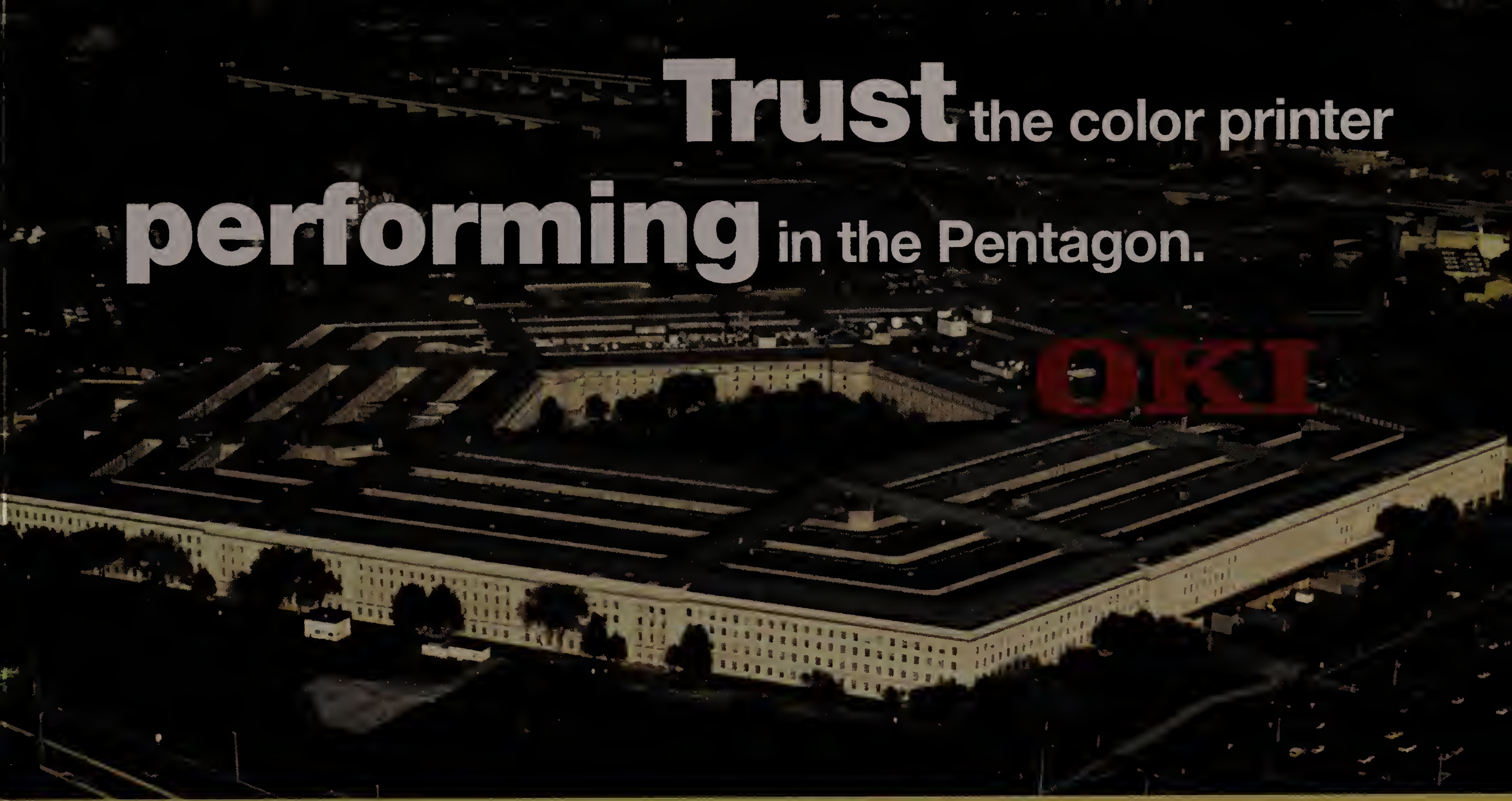

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[1]Time to first page 11.5 seconds color, 10 seconds mono. [2]Total Cost of Ownership (TCO) claim based on 2,000 pages per month (100 pages per day). For further information, visit www.okidata.com/business.

FOCUS ON YOUR CUSTOMERS NOT YOUR TECHNOLOGY

Information Access When, Where and How You Need It

You're at your customer's office, and you know it's there—the one piece of business-critical data you need, right now, to finish the job and satisfy your customer. The fact that you're away from the office doesn't negate your need to remain productive and manage your time efficiently—indeed, these needs are often heightened while on the road. But the reality is that the increasing reliance on technology to deliver up-to-date information means that anytime, virtually anywhere data access can make the difference between a business win or loss.

Anytime, virtually anywhere access can empower collaboration: Communicating with your co-workers, customers and partners across town or halfway around the world via audio conferencing, video conferencing and e-seminars can reduce travel costs and increase productivity. Secure, reliable collaboration and messaging tools enable your service-oriented business to solve problems quickly, shorten decision-making processes, and outshine the competition with better plans and faster solutions. But as IT infrastructure and networks evolve, and as the number of mobile employees increases, the ability to access data on demand in a secure fashion is more critical, yet more complicated than ever.

Given these obstacles, how can you ensure that your business stays ahead of the curve when it comes to secure access solutions? Talk to the experts at Sprint. It's their business to simplify your communications and help you increase your company's productivity.

Sprint can tailor a solution that works for your company. That's because Sprint solutions give your employees the access they need to be more effective. With over three decades of experience providing data services, Sprint offers a complete portfolio of data, voice and managed network solutions that can give your business an edge with the tools it needs to succeed.

Convenient, reliable and secure remote access. Whether you are working from a branch office, a customer's office or working with an off-site team, your important documents and messages are at your fingertips. Sprint can provide interoperability among ATM, Frame Relay, and IP VPN networks, enabling seamless migration to IP-based applications. Dedicated and dial IP solutions with the security of VPNs (CPE or network based) mean you are not without access to critical data. Letting Sprint manage your network services can save time and money and allow your IT staff to focus on delivering applications rather than worrying about the status of the network.

Security for your important information. When you lose information, you can lose money—maybe even the customer relationship. From short-term technical glitches to catastrophic events, Sprint Business Continuity Solutions can provide you with the peace of mind that your information is safe. Think of it as insurance for your valuable information assets. Choose from e-mail protection and spam filtering to full disaster recovery. Sprint offers managed hosting, storage and backup options so that your business can survive.

Cost-effective collaboration with customers, partners, and peers. Bring your employees and customers together without travel or advance reservations. From concept meetings to staff training and e-seminars, you can leverage Sprint's 20-plus years of experience in video and teleconferencing. Your employees can audio or video conference between most dissimilar equipment, stream live or recorded audio and video broadcasts and even use Sprint Instant Messaging to conduct private, secure, virtual meetings on-the-fly, between desktop users, PCS phone users and handheld users—anytime, virtually anywhere. ❖

ADDITIONAL RESOURCES AND EVENTS

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Inflamed costs? Bloated inventories? Fractured networks? Strained security? Sprint feels your pain. And we may be equipped to do something about it. Surprised? Don't be. In a recent study by J.D. Power and Associates, **Sprint was ranked highest in customer satisfaction with business high end data service providers.** That's in addition to a second J.D. Power and Associates award for highest customer satisfaction with business long distance telephone service providers. Clearly, this is pain relief that has shown it can handle the toughest industry headaches.

A healthy, new approach: as much pain management as you need. Think of Sprint communications solutions as targeted relief, identifying the pain at its source, then offering up remedies working with your existing IT investment.

Virtually wherever it hurts, you'll have the Sprint broad portfolio of IT services to call on: Sprint IP VPN℠, IP Intelligent Frame Relay, Dedicated IP, DSL, and Sprint Frame Relay℠. And when it stops hurting, we can provide you data, wireless, and IP-based solutions that can enable secure and ready access to key information when, where, and how you need it. Now that should make any business feel—and work—a whole lot better.

If you think of Sprint as just a long-distance provider, it's time for a second opinion. Maybe you're already using Sprint to resolve your long-distance aches and pains. Let us show you how we can provide communications solutions at the next level: your level. Speak to a Sprint representative today and just tell us where it hurts.

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trendlines

the NEW the HOT the UNEXPECTED

Edited by Lafe Low and Michael Goldberg

REBUILDING IRAQ

Europe Pushes Own Wireless Agenda

Baghdad, April 18—Wireless networks are expected to play a critical (and profitable) role in rebuilding Iraq.

EUROPEANS MAY HAVE opposed the war in Iraq, but European companies are angling to get a piece of the action there now that the fighting has stopped. Nowhere is the battle shaping up to be more fierce than in the decisions over the construction of a wireless telecommunications network in war-ravaged Iraq, a country roughly the size of California. And when it comes to wireless standards, European companies may have the edge.

The wireless push toward Iraq pits European telecom carriers that use the standard known as global system for mobile communication (GSM) against U.S. companies using the CDMA (code division multiple access) standard. (Europe also has more experience with GSM than Asian equipment makers.) Telecom analysts and European equipment makers stress that GSM technology, which was developed in Europe, would be easier to install and more effective in the region. "GSM makes sense because it's the predominant technology in the Middle East," says Jason Chapman, a mobile infrastructure analyst at the London office of Gartner. "The fact that the main [GSM] players are European understandably raises concern in the U.S., but it would have to be GSM for the good of Iraq."

The U.S. government has started awarding contracts for Iraq's reconstruction and appears to favor American companies so far. The House of Representatives went so far as to pass a measure barring French, German and Russian companies from winning business in Iraq after the war. That measure did not become law, but anti-European sentiment

Continued on Page 24

WEBCASTS

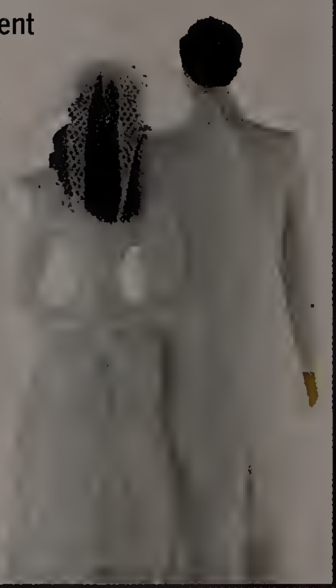
Love Connection

THE ANCIENTS WELCOMED SUMMER with nuptial odes to marriage goddess Juno in front of family and friends. Today's brides and grooms at A Little White Wedding Chapel in Las Vegas can include far-flung friends and relatives in the festivities—live, via a webcam.

Chapel CEO and Minister Charolette Richards, whose chapel has hosted ceremonies for Frank Sinatra and the Dixie Chicks' Natalie Maines, says about three in 10 couples choose to webcast their wedding. (There's a $50 add-on fee for the service.) The chapel can also burn your ceremony on a CD for repeat viewing and send e-mail invitations to the viewing.

IStreamPlanet, Richards' webcast hosting company, permits access to any Web user with the bride's or groom's name at *www.alittlewhitechapel.com*. Mio Babic, president of iStreamPlanet, says one wedding attracted users from 269 locations, including Scotland, "where it was 3 a.m. I kept looking at the screen thinking, This is impossible."

–Julie Hanson



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TRAINING

Onboard the IT Train

TRAINING I.T. WORKERS ISN'T EASY—rapid technological change, cost and the economy are among the barriers to effective training programs, the U.S. General Accounting Office found in a recent study of large companies' programs. The GAO identified six best practices for delivering IT training.

1. **Provide IT trainees with the flexibility to choose among different IT training delivery methods.**
2. **Ensure that on-the-job training is planned and monitored as part of the training process.**
3. **Consider combining different teaching methods (Web-based and instructor-led) within the same course.**
4. **Provide just-in-time training.**
5. **Consider outsourcing training solutions—university partnerships and external IT training and content providers.**
6. **Build courses using reusable components.**

SOURCE: "INFORMATION TECHNOLOGY TRAINING: PRACTICES OF LEADING PRIVATE-SECTOR COMPANIES," A GAO REPORT, JANUARY 2003

ONLINE ETIQUETTE

The Essential Elements of E-Mail

A GOOD E-MAIL MESSAGE will communicate your thoughts quickly, clearly and concisely, says Sheryl Lindsell-Roberts, author of *Business Writing for Dummies*. Lindsell-Roberts shared her tips for effective e-mailing during a recent seminar.

TREAT SUBJECT LINES LIKE NEWSPAPER HEADLINES. E-mail subject lines are your chance to quickly grab the reader's attention, so pack them with concise, detailed information. *Poor*: "Sales Report." *Better*: "Sales up 7 percent in third quarter." When you reply to an e-mail, use the subject line to convey the essence of your response.

WRITE MESSAGES LIKE YOU'RE TELLING THE NEWS. Get to the point quickly. Put the information that's most important to your reader in the first paragraph. Answer any questions—who, what, when, where, why and how—you think your reader will ask.

KEEP YOUR E-MAIL MESSAGES SHORT. Remember that many executives will read your e-mail on a handheld device, and those have small screens. Never write an e-mail message that stretches beyond two computer screens. *Office tip*: To communicate more detailed information, send colleagues to an intranet link.

REMEMBER YOUR MANNERS. Double-check the spelling of your e-mail recipient's address. Personal messages about health, job status or appointment changes are better conveyed in person or over the phone. *Don't* treat e-mail casually. Avoid sending any message you would be ashamed to see reprinted later.

–Michael Goldberg

Europe's Wireless Agenda

Continued from Page 22

persists. In March, Rep. Darrell Issa (R-Calif.) stirred controversy by drafting a bill asking that the government use the U.S.-developed CDMA standard in constructing Iraq's wireless network. Issa expressed concern that if GSM technology were chosen in postwar Iraq, much of the equipment could come from France and Germany, as well as Finland and Sweden. That's certainly a possibility. France's Alcatel and Germany's Siemens are in the running, as are Nokia of Finland and Sweden's Ericsson. "These kinds of contracts are our raison d'etre," says a spokesman at Alcatel, which clinched a $75 million contract to update Iraq's fixed-line phone service after the first Gulf War. "We have experience in Iraq, and we would like to go back."

Given the current anti-French mood in Washington, any contract for Alcatel may be a long shot. In fact, Motorola is a strong candidate despite its relative lack of experience in the region. And Motorola isn't alone. TSI, a New Jersey company, won a bid to install a GSM system in Afghanistan.

Still, French leaders are hoping their companies won't get shut out. "We are actively working together with business leaders here on this topic," said Benoit Gausseron, a French finance ministry official. Added Alcatel's spokesman: "We never mingle business with political issues. Technology-wise, we can provide every kind of network Iraq would need."

–Susannah Patton

GSM facts

» GSM equipment makers include Nortel (Canada), Nokia (Finland), Alcatel (France), Siemens (Germany), Panasonic, NEC, Toshiba and Mitsubishi (all Japan), Samsung (Korea), Ericsson (Sweden), Motorola and Lucent (U.S.)

» One billion customers use GSM in 193 nations on every continent

» The GSM standard accounts for 72 percent of the worldwide digital wireless market

SOURCE: THE GSM ASSOCIATION

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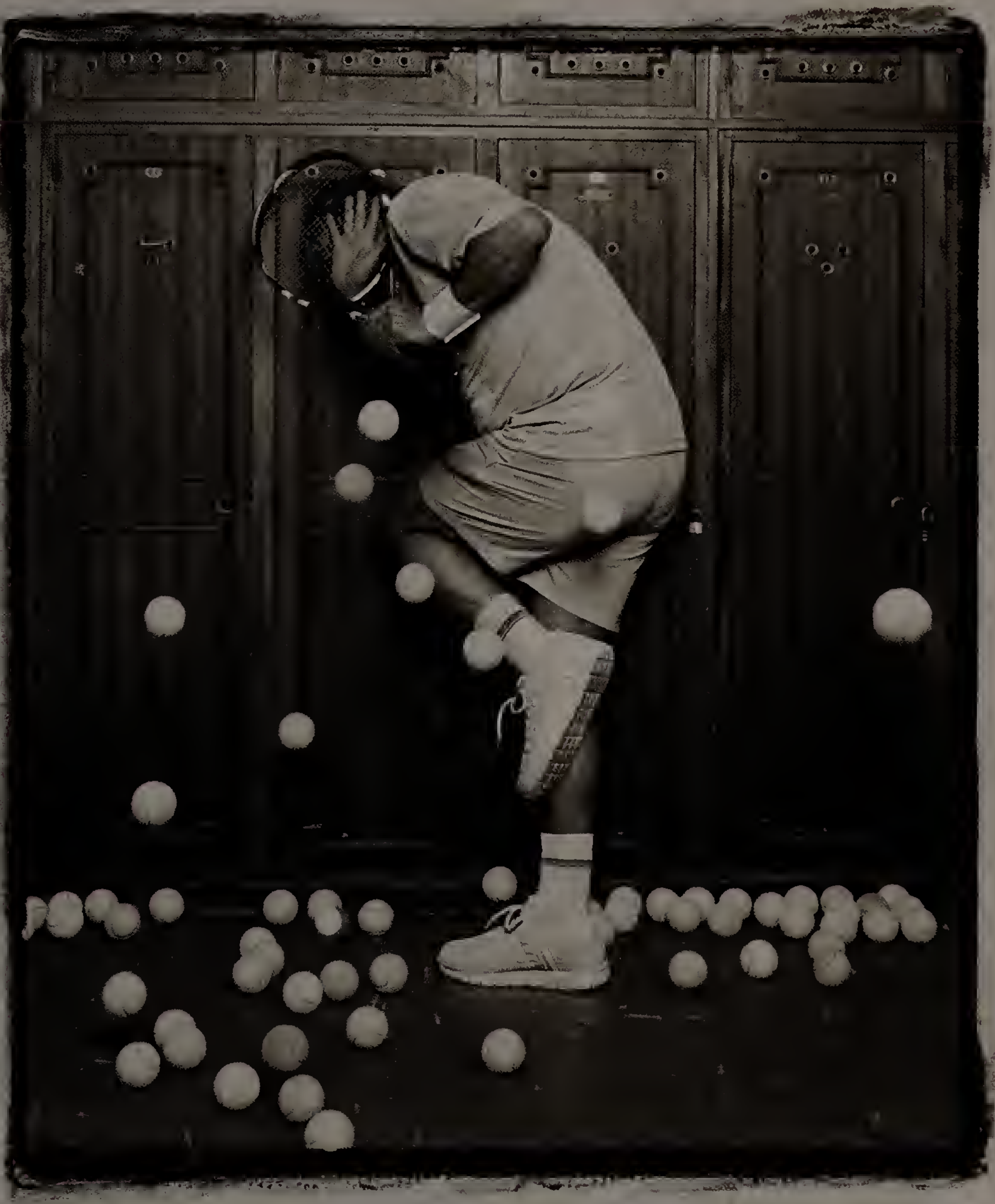

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—Curtis Robb, Delta Air Lines CIO,
Delta Technology CEO

By the Numbers

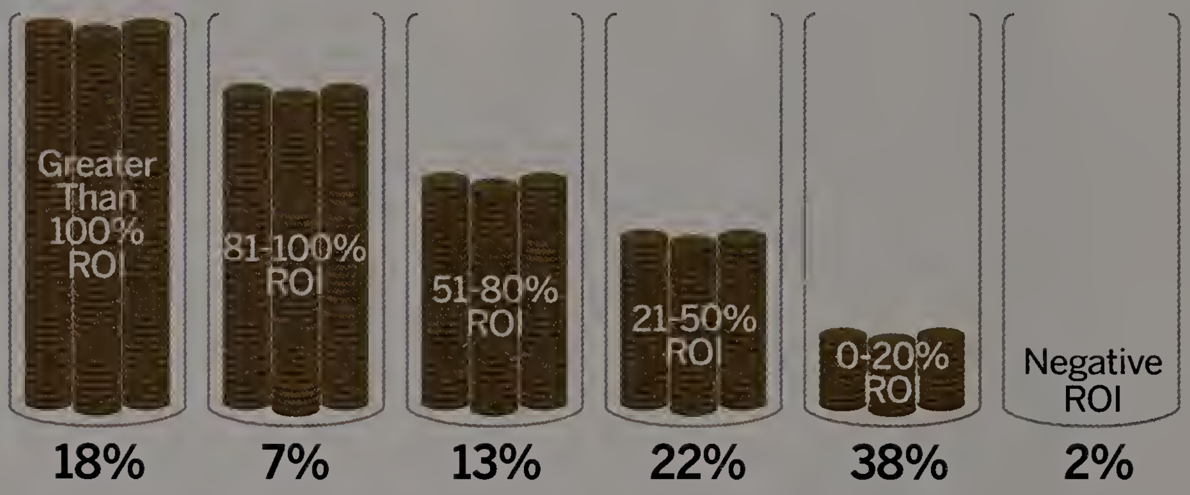
By Lorraine Cosgrove Ware

Portals Showing Measurable ROI

CORPORATE PORTALS provide your staff, your customers and your business partners with quick access to company data and business information. And portals can lower costs and enhance the bottom line. A recent Delphi Group study reports that it's difficult to measure the ROI of portals, but it's not impossible. Here's how to find the ROI.

ROI of Portal Deployment Within First 24 Months

While it's true that few companies have seen a complete return of their portal investment, companies are getting measurable returns. According to Delphi's study of 250 portal implementations, 18 percent of companies saw a 100 percent return on their portal deployment. A little more than a third (38 percent) measured a zero to 20 percent return.



SOURCE: "ENTERPRISE PORTALS: TOTAL MARKET PERSPECTIVE," DECEMBER 2002, DELPHI GROUP. PERCENTAGES BASED ON RESPONSES OF 250 COMPANIES.

Best Practices

Create a strategic blueprint. Right from the start, align the critical objectives of your portal with strategic goals of the organization. For example, an objective to migrate purchases from suppliers to the portal can result in centralized purchases and greater volume discounts.

Link soft benefits to hard dollars. While reducing an employee's intranet search time is a soft dollar benefit, in the case of a salesperson searching for inventory data, it can result in a shorter sales cycle and faster inventory turns, which can be clearly demonstrated on a balance sheet.

Build a multitasking portal. Successful portals provide a variety of capabilities, such as community development, search functions and internal-expertise location, rather than providing only static information to employees.

Portal Benefits

Measurable ROI: Mention these to your CEO

- ✓ Accelerated time-to-market for new products
- ✓ Increased employee productivity
- ✓ Reduced employee search time
- ✓ Shift to Web-based customer support
- ✓ Reduced paper consumption

Hard to Measure ROI: Don't mention these to your CEO

- ✗ Employee satisfaction
- ✗ Standardized corporate communications
- ✗ Employee self-service
- ✗ Enterprisewide searching for internal company information

Bank CIO uses up vacation days before end of year

Prior to implementing Nokia Message Protector, CIO Sam Cooke, 42, was robbed of 2–3 weeks per year

"I feel liberated," Sam was heard saying by fellow banking staff as he left the office for a well-earned break. Sam was recently seen in Pisa wearing a very silly hat, and rumor has it he was then off to Venice to count the pigeons at St. Mark's Square. He credits his wanderlust to Nokia. "Before, I was constantly worried about the impact that tight security

Features
Secure
Automatic
Updates

Message Protector, I
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and network teams
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Q&A: BARBARA TOFFLER

Postcards from an Ethical Wasteland

When it comes to ethics, former Arthur Andersen consultant Barbara Toffler says culture is more powerful than individuals

HARVARD BUSINESS SCHOOL PROFESSOR and business ethicist Barbara Toffler became a partner at Arthur Andersen in 1995 when the auditing and consulting firm's profits were rising and its ethics were heading the other way. Toffler was brought in to build an ethics consulting practice and soon found herself acquiescing to her bosses' edicts to inflate bills and sell clients work they didn't need.

Toffler left Andersen in 1999, well before the Enron and Global Crossing scandals destroyed the company. Her book, *Final Accounting: Ambition, Greed, and the Fall of Arthur Andersen* (Random House/Broadway Books, 2003), describes the process of ethical erosion in grim detail.

CIO Executive Editor Christopher Koch asked Toffler to explain Andersen's actions—and her own—and to offer CIOs advice for dealing with their own ethical conundrums.

CIO: In your book you say that Andersen had a history of good ethics, and then something went wrong. What was it?

Barbara Toffler: At one time auditing was a good, solid profession that would provide a good life but wouldn't make you rich. But then the partners' desire for personal wealth led to the mantra of "keep the client happy," which meant not upsetting and not challenging them. In the meantime, they were building up these consulting services. They thought the way to sell the services was to do what the client wanted [on the audit side].

CIOs have a big dilemma. Lack of funding and time pressures create the temptation to cut corners. Do you have advice for them?

I don't have any easy advice. The problem at Andersen was that there was punishment for "eating time," putting work into a project beyond the allotted budget. It seems that this should just be common sense: Everything should not be driven by that last penny you can squeeze.

Is the culture more unethical than the individuals?

Culture shapes behavior. There are plenty of perfectly decent people who go astray because they're in a culture that creates an environment in which they can't get their jobs done unless they engage in unethical activities.

Andersen became powerful by developing a consistent process for auditing and consulting. Many companies are trying to standardize processes, to come up with one way of doing things. Are they heading for an ethical trap?

I was invited to do a seminar with some technology people. I asked, If you install technology in a standardized fashion, are you responsible for outcomes that might be less than positive? And they said no. I quoted a line from a song by Tom Lehrer about Wernher von Braun. It said, "Once the rockets go up who cares where they come down? That's not my department." I asked, Are you essentially taking the same position? And everyone got very upset. But I thought they were saying, We develop these models and then it's out of our hands.

Ethics right now is a hot topic. Is this focus sustainable?

I don't think so. It's in the headlines, but people I talk to say not all that much is being done.

When you were at Arthur Andersen, you knowingly sold clients work they didn't need and overcharged them. Isn't that hypocritical?

Sure. And let me tell you, I wasn't the only one who was doing it. But yes, it's the height of hypocrisy. It was a miserable time for me. I know I didn't do anything that was illegal. I rationalized it, as people do. But I was getting so stressed at not being able to meet the targets that were set for me. And this is what happens to so many people—you just slip into doing things that don't feel very good.

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On the Move

By Meridith Levinson

Latest Wal-Mart Special: Board Members

IT SEEMS LIKE EVERYONE wants to know the secret behind Wal-Mart's undying success. What better way to get a glimpse behind the blue and white curtain than by tapping one of Wal-Mart's former CIOs?

Last March, two veteran leaders of the retailer's IT troops were snatched up for boardroom seats. **Bob L. Martin**, who served as Wal-Mart's CIO from 1983 to 1992, has joined the board of department store chain Dillard's. **Randy Mott** (above), Wal-Mart's CIO from 1994 to 2000 and the current senior vice president and CIO of Dell Computer, was recently elected to the boards of the Fleming Cos. and The Gap.

Wal-Mart isn't the only retailer whose CIOs are making news, however. Longs Drug Stores named **Michael M. Laddon**, a former software salesman, as its new senior vice president and CIO. Making a former vendor salesman a CIO may seem like a questionable move but only if he lacks CIO experience. That's not the case with Laddon. He was previously the CIO of now-defunct online grocer Produceline.com and Ralphs Grocery, which is now owned by grocery giant Kroger.

WMS, the holding company for Waldo's Dollar Mart, has promoted **Carey L. Lowrey** from director of store systems to vice president of information systems. Prior to joining the discount retailer, Lowrey held director-level positions with AutoZone, Best Buy and Boston Market.

To Everything, Churn, Churn, Churn

The past few months have seen several high-profile resignations among the ranks of federal government CIOs. Most notably, **Paul Strassmann** announced his impending departure from NASA. At presstime, Strassmann was still with the agency and had not yet announced his next move. However, the agency has already appointed its deputy CIO **Patricia Dunnington** as Strassmann's successor.

At the IRS, **John Reece** left his post as CIO and deputy commissioner of the department's modernization project in April. He plans to resume his private consulting business. Reece was appointed as the agency's CIO for a four-year term that was scheduled to run until 2005. His resignation came just as the IRS was planning to deploy the first two phases of its multiyear effort to replace its taxpayer database.

Meanwhile, the departments of Treasury and Transportation have both named new CIOs. Transportation Secretary Norman Mineta selected **Daniel P. Matthews** as the department's new CIO and his personal adviser on all things IT. A former dotcom entrepreneur, **Drew Ladner** (cofounder of Clique.com and Ripcord Systems), has taken the top IT job at the Treasury Department.

PROFILE: PAPER CHASE

SUSAN MERSEREAU followed a circuitous path to her current position as senior vice president for IT and CIO of Weyerhaeuser. The 23-year veteran of the $18.5 billion timber company spent 10 years in education before joining the company. She became its CIO last February.

After earning a master's degree in history from the University of Chicago, she taught at a tough inner-city school. It wasn't until she was leading the research department for the Seattle school district that she made her foray into IT. "We were in the middle of a desegregation plan for Seattle school districts where we had to consolidate facilities and redistribute students based on ethnic categories," she says, "so we had a huge operations research model that was very computer dependent."

After managing that research department for three years, Mersereau needed to move on. "One day I was listening to lawyers talk about doing environmental impact statements on environmental impact statements," she says. "I'm a very results-oriented person, and something snapped inside of me. I said to myself, 'I've got to do something else.'"

That something else was program manager at Weyerhaeuser. Her background in research led the paper company to put her in charge of a study that assessed how the company should manage telecommunications in the aftermath of the AT&T breakup. From there, she quickly climbed Weyerhaeuser's corporate ladder. These days, Mersereau is focused on completing the integration of companies acquired within the past four years. "We've just completed two major acquisitions," she says, "and we're really going to be focusing on laying down a foundation for the future."

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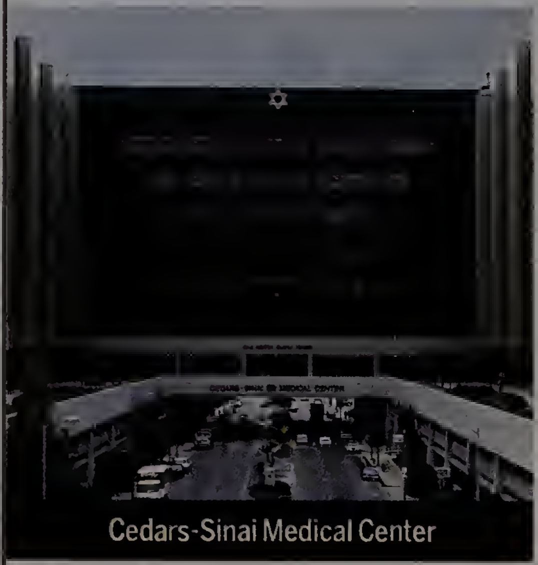
HEALTH-CARE I.T.

A Big Rollout Bust


Cedars-Sinai Medical Center

HOSPITALS ARE UNDER increasing pressure to install computer systems that allow clinicians to order tests, medications and lab results electronically. Such systems, known as computerized physician order entry (CPOE) systems, can reduce medication errors by as much as 86 percent, and save hospitals and doctors' practices billions of dollars, studies show. A growing number of states, including California, are requiring hospitals to install them. Yet only 3 percent to 5 percent of American hospitals have fully implemented CPOE systems. What gives?

Clues to this puzzle can be found in the disaster that recently befell a new CPOE implementation at Cedars-Sinai Medical Center in Los Angeles.

As the Cedars-Sinai story illustrates, there is a right way to install CPOE systems and a wrong way. This teaching hospital, some observers say, took the latter approach—a Big Bang adoption that required all of its physicians to show they could use the new system on one day or lose their privileges to admit patients. Three months later, hundreds of Cedars-Sinai physicians revolted, voting to suspend their usage of the hospital's CPOE system indefinitely.

Doug Jones, CIO and vice president of enterprise IS at Cedars-Sinai, says it was not just the suspension of privileges that led to the physicians' revolt in January. "A lot of the issues were about the additional time required when you're first learning the system," Jones says. But he acknowledges, "There were issues about it being mandated. Some of the objections were raised by physicians with little contact with the system. There was a certain amount of urban legend that grew up around it."

What Jones and other hospital executives learned from the experience is that "you cannot communicate enough with physicians. You have to get some of them involved at a fairly deep level so they understand how things are going to change and build [their] ownership of it," Jones says.

Hospital executives are now revisiting the issue of mandating CPOE. They are also trying to make the system more user-friendly. Once those changes are made, they hope to have the prescription entry system up and running again sometime this year.

–Alison Bass

This Date in IT History June

1

Boston-based inventor **Thomas Edison** (left, in 1878) receives his first patent on this day in **1869** for the electric voting machine. Edison's original concept was intended solely for voting within Congress, but by 1892, his vision takes form publicly in a Lockport, N.Y., town meeting. Based on the same principles of Edison's idea, automatic voting machines of today are more secure and some even offer touch-screen voting.

2

In **1993**, **Apple** loses a lawsuit filed against Microsoft and Hewlett-Packard over the look and feel of Windows 3.0. Apple had claimed that the graphical user interface of Microsoft's Windows 3.0 and licensee HP NewWave, with its drop-down menus, tiled windows and mouse support, too closely resembled that of the Mac. Judge Vaughn R. Walker decrees that Microsoft did not violate the parameters of an Apple license agreement written in 1985.

9

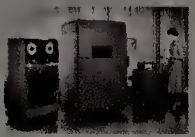
Retailing for $3,000, the **Xerox 820** hits the market in **1981**, becoming the first PC offered by an office products company. The 820 sports two disk drives and a 24-line, 80-character type monitor.

11

The **first photograph sent across the Atlantic via radio facsimile** occurs in **1922** between Rome and Bar Harbor, Maine. The photograph of Pope Pius XI takes 40 minutes to transmit and is published in the *New York World* newspaper the same day.

14

Engineer John Mauchly visits Dr. John Atanasoff at Iowa State University in **1941** to witness firsthand Atanasoff's **digital electronic computer**. Using many of Atanasoff's ideas, Mauchly goes on to coinvent the ENIAC computer, unveiled in 1946 and falsely regarded as the first contemporary computer. The dispute between the pioneers ends 31 years later in 1972, when a judge overturns Mauchly's patents and declares Atanasoff to be the true inventor of the electronic computer.



Exactly 10 years after his visit to Iowa, in **1951**, Mauchly and Prosper Eckart unveil the **UNIVAC**, the commercial version of the ENIAC.

17

The **first commercial mobile telephone service** kicks off in **1946**. Southwestern Bell Telephone teams with AT&T and installs car phones for two customers in St. Louis. Initial models are plagued by interference, prompting Southwestern Bell to slim its six channel operation to three channels.

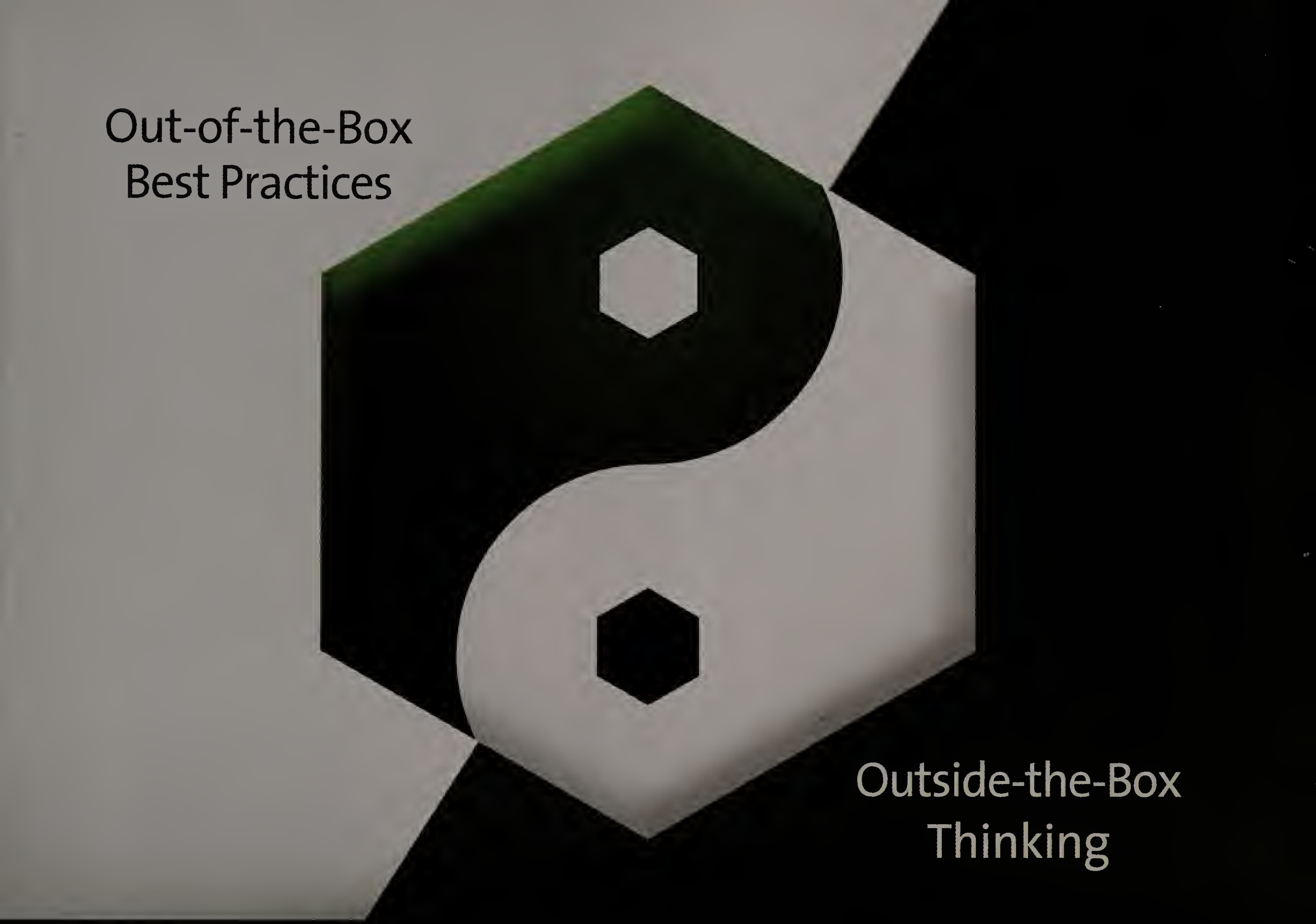
18

Prodigy announces in **1992** that it will become the first major online service to grant its users access to the Internet. By 1993, however, the advent of Web browsers leads to a membership exodus from Prodigy's proprietary service. In 1996, the company converts itself to an Internet service provider and gives up its online service format.

26

The Supreme Court rejects the **Communications Decency Act** in **1997**, citing its inherent violation of free speech protections of the First Amendment. The act, which called for two years' prison time and a fine of $250,000 for transmitting indecent material to minors, is criticized by opponents for its vagueness and reliance on the subjectivity of those enforcing it. *–Daniel J. Horgan*

SOURCES: ABOUT.COM, CNN, DUKE UNIVERSITY, EDUCATION TO GO, GALAXY PHONES, HF-FAX, HISTORY CHANNEL, MONTEREY COUNTY ELECTIONS, VIRGINIA TECH, TODAY IN SCIENCE HISTORY



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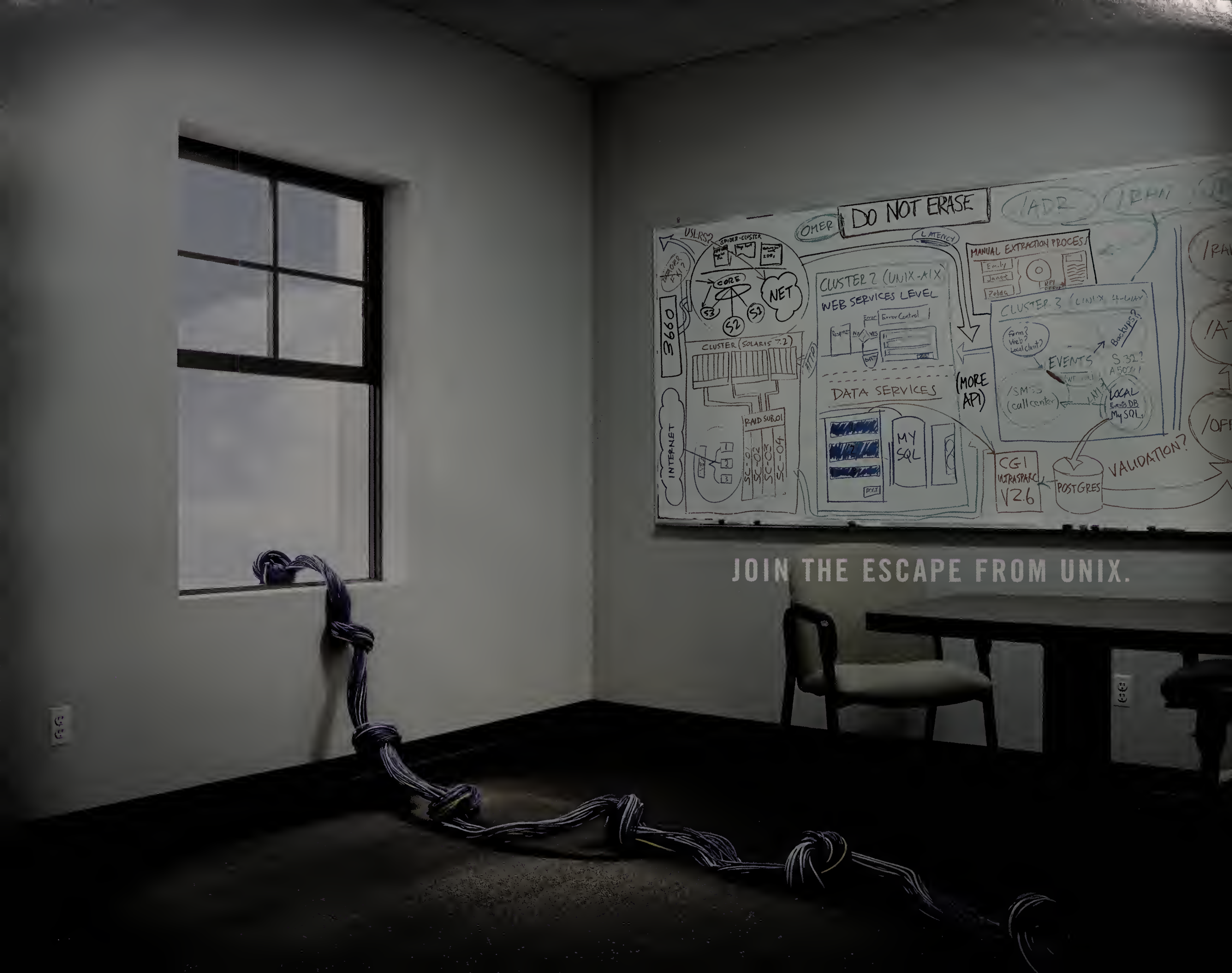
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Forward Thinking About Reverse Auctions

It's easy to overestimate the value of this online procurement tool

BY MOHANBIR SAWHNEY

ILLUSTRATION BY CARL WIENS

ONLINE REVERSE AUCTIONS look like a silver bullet that cuts costs quickly using e-business tools. Reverse auctions are fixed-duration bidding events hosted by a single buyer, in which multiple suppliers compete for business. Proponents claim reverse auctions can lower the cost of procuring products and services as much as 20 percent, making them the e-business application of choice for companies faced with declining sales and margins. However, the raw savings overstate the value of this vaunted online procurement technique.

Reverse auctions achieved fame when General Electric, the poster child for e-business, touted phenomenal savings from using the method. GE CIO Gary Reiner claimed the company saved approximately $600 million by using reverse auctions in 2001, which was a net savings of 8 percent. In the public sector, the U.S. General Services Administration reported that a pilot program in which the Defense Finance and Accounting Service, Air Force and Coast Guard used reverse auctions resulted in savings of 12 percent to 48 percent. And in its 2001 annual report, the leading auction software and services company FreeMarkets reported that it had saved its customers an estimated 20 percent on a total of $30 billion worth of purchases since 1995.

These numbers are compelling. Unfortunately, they are also misleading. Like any tool, reverse auctions, when properly used, can provide value. But when they are overused or misused, the savings they promise can be illusory, and they can inflict real damage on supplier relationships.

The Dark Side of Reverse Auctions

Two of the most outspoken critics of reverse auctions are David Stec and M.L. (Bob) Emiliani from the Center for Lean Business Management at Rensselaer Polytechnic Institute. In a paper published last year, they argue that online reverse auctions rarely deliver savings that are as great as advertised by auction service providers. In addition, they contend that savings from reverse auctions are difficult to measure and that they

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do not teach buyers and sellers how to solve problems jointly. They conclude that reverse auctions are toxic for buyer-supplier relationships.

Stec and Emiliani observe that in the case of GE, the company actually netted only half of the savings initially generated through bidding. Their conclusion: 50 percent of the savings from using reverse auctions disappear because of factors such as errors in supplier data, postauction negotiation, and changes in specifications or quantities. In addition, Stec and Emiliani report that GE does not account for extra expenses resulting from problems such as poor quality, late deliveries and supplier nonperformance. When these losses are added up, net savings from reverse auctions look far less appealing than buyers expect.

> **Price is only one element of the buyer's value equation.**

Even more dangerous is the deterioration of buyer and supplier relationships when reverse auctions are used to beat up suppliers on price. Fundamentally, reverse auctions are zero-sum games—the buyer's savings is the seller's loss of revenue. In a separate study of the aerospace industry, Stec and Emiliani found that suppliers that are forced to bid in reverse auctions look for opportunities to retaliate. More than 70 percent of suppliers in the study said they would charge higher prices to their customers as a direct result of their participation in reverse auctions—if they had a chance to do so in the future. Considering that 43 percent of the suppliers reported recapturing 20 percent of the orders they lost to new suppliers in reverse auctions because the new suppliers did not deliver, these suppliers have ample opportunity to retaliate.

Finding the Middle Ground

While I agree with the critics about the downside of reverse auctions, I believe that they overstate their case when they say that reverse auctions are fundamentally a bad idea. Here are four tips that can help you find the middle ground.

1. Think beyond price. While buyers may feel good about getting the lowest price, ultimately it is the greatest value that matters. Price is only one element of the buyer's value equation. Other variables that buyers need to consider include quality, reliability and value-added services. To account for these variables, buyers should move away from price-only auctions to multiattribute auctions that allow suppliers and buyers to trade off nonprice variables against price. Software vendors such as Perfect Commerce and IBM are responding to the need for more sophisticated online bidding with tools that allow buyers to conduct auctions and evaluate bids on multiple variables.

2. Use where appropriate. Reverse auctions are appropriate for transactional sourcing situations characterized by one-time purchases—typically for commodity products available from multiple suppliers. On the other hand, reverse auctions are generally not appropriate for strategic sourcing of differentiated parts and components, where suppliers have specialized capabilities and few suppliers can meet quality and reliability standards. In strategic sourcing situations, relationships with key suppliers are very important, so buyers need to think carefully about the risk of eroding these relationships by overusing reverse auctions.

3. Understand hidden costs. Savings from the first few reverse auctions a buyer conducts often overstate the eventual savings in two ways. First, as GE's numbers suggest, there is a big difference between the savings measured at the time the auction closes and savings measured at the end of the transaction. To get a more accurate picture, buyers need to account for the direct as well as indirect losses that could arise over the life cycle of procurement. Second, pilot auction programs produce much higher savings because new suppliers may engage in "loss-leader pricing" to get the buyer's business. These prices may not be sustainable because suppliers will look for opportunities to raise prices or add hidden costs once they have won the business.

4. Follow the Golden Rule. Squeezing suppliers because you are in a buyer's market is dangerous. When the economy turns around and demand exceeds supply, suppliers will be tempted to retaliate against buyers that they feel have taken advantage of them by charging higher prices or by refusing to do business with them. It is easy to pressure suppliers on price. It is much harder to maintain prices by creating innovative and differentiated products so that you as well as your suppliers can make a fair profit. If your suppliers don't make money, ultimately you won't reliably be able to make money either.

Reverse auctions are only one of the tools in a portfolio of procurement mechanisms that can include exchanges, catalog purchasing, negotiated contracts and strategic purchasing. It is neither a silver bullet nor is it evil. Remember the proverb: "If all you have in your hand is a hammer, the world looks like a nail." By using reverse auctions judiciously, you can move your sourcing strategy forward.

What are the results from your reverse auctions? Write us at *netgains@cio.com*. Mohanbir Sawhney is the McCormick Tribune Professor of Technology at Northwestern University's Kellogg School of Management. He can be reached via e-mail at *mohans@kellogg.northwestern.edu*.

Leaders Who Get It

Pierre Gagnon
CEO
Mitsubishi Motors North America, Inc.

Joe Guyaux
President
The PNC Financial Services Group

Pierre Danon
CEO
BT Retail

Proven CRM. Proven results.

CRM investments that paid off

Delivering an exemplary customer experience is a chief competitive differentiator in today's global markets. As customers continue to expect more, and as markets and competitive dynamics change, the demands on technology infrastructures and IT leaders continue to grow. Working with limited budgets in a "do more with less" business environment, companies must leverage their existing IT investments wisely as they employ new applications, improve their business processes and services to exceed customer needs, and deliver reliable productivity gains and quick returns on investment. The failure of many projects to balance these demands has understandably diminished executive appetite for CRM outlays. It also underscores the importance of working with CRM vendors who possess proven track records in building customer relationships that deliver tangible results within reasonable time frames.

Siebel Systems' deployments deliver proven results. Built on a highly flexible and easily configurable architecture, Siebel CRM applications draw on more than ten years of CRM domain expertise to embed out-of-the-box industry best practices in business processes. This enables customers to rapidly transform themselves into customer-centric enterprises and realize rapid and measurable cost efficiencies. Our unique, industry-specific integration solutions and automatic upgrades allow companies to optimally leverage limited IT resources. As the following case studies prove, Siebel customers make CRM investments that pay off.

Pierre Gagnon
CEO
Mitsubishi Motors North America, Inc.

MITSUBISHI CRM SUCCESS

- REDUCED CALL ABANDON RATE: 8%
- REDUCED COST PER CALL: 38%
- ANNUAL SAVINGS: $3.7 MILLION

MITSUBISHI MOTORS NORTH AMERICA, INC.

Enhancing Productivity and Customer Service

Mitsubishi Motors North America, Inc. (MMNA) is the exclusive U.S. distributor for Tokyo-based Mitsubishi Motors Corporation, offering American motorists a full line of passenger cars and sport utility vehicles. In order to successfully manage its increasing number of customer relationships, MMNA must track customers through their ownership life cycle, which includes current and past purchases, service issues, and financial transactions. In addition, MMNA realizes that customers see themselves as having only one relationship with Mitsubishi—not one relationship for the vehicle and a second relationship for financial services.

To provide its customers with an integrated experience, MMNA is deploying the Siebel Automotive Captive Finance solution set, a suite of Siebel applications tailored to the unique needs of captive vehicle finance organizations. The deployment represents an expansion of MMNA's current Siebel Call Center deployment, which has enabled the company to lower its call abandon rate by 8 percent and reduce its cost per call by 38 percent. All of this was accomplished during a growth period in which inbound volume increased by 75 percent.

"We've realized significant cost reductions, efficiency gains, and improved customer and employee satisfaction from our CRM deployment," says Pierre Gagnon, CEO, MMNA. "Looking forward, CRM technology will play an ever-increasing role in supporting our 'single-point of contact' strategy."

For more information, visit **siebel.com/provenresults** or call **1-800-371-0407**

Joe Guyaux
President
The PNC Financial Services Group

PNC REGIONAL COMMUNITY BANK CRM SUCCESS

OVER THE PAST YEAR:
- INCREASED ACQUISITION OF NEW CONSUMER CHECKING CUSTOMERS: 19%

OVER THE PAST TWO YEARS:
- INCREASED CUSTOMER RETENTION: Retained 21% more of their checking households
- INCREASED CUSTOMER SATISFACTION: 9%

PNC REGIONAL COMMUNITY BANK
Putting "Personal" Back in Banking

PNC Regional Community Bank (RCB) is the largest division of Pittsburgh-based The PNC Financial Services Group, employing 10,000 people and generating approximately half of the parent company's annual earnings. In the mid-1990s, with the goal of accelerating revenue growth, the RCB launched a customer-focused strategy that was aimed at giving each customer a superior experience at every point of contact.

To fulfill this vision, RCB worked closely with Siebel Systems and IBM to transform its customer outreach and service infrastructure and technology. The transformation entailed rolling out Siebel Finance to 3,500 financial consultants, or virtually 100 percent of the company's retail customer contact employees. The system makes customer information available in a single customer folder, visible to employees and customers across channels.

The results? More effective customer acquisition, improved customer retention, and streamlined problem-handling. "We have redefined the future for ourselves as a growing business," says Joe Guyaux, President, The PNC Financial Services Group. "We are now a model for customer effectiveness in the retail banking industry."

Pierre Danon
CEO
BT Retail

BT RETAIL CRM SUCCESS

- INCREASED REVENUE PER CUSTOMER: 20%
- INCREASED PRODUCTIVITY: 5,000 new accounts identified in 12 weeks
- INCREASED CUSTOMER SATISFACTION: BT Retail grew customer satisfaction to 86%
- INCREASED CALL-HANDLER SATISFACTION: 34%
- ROI: 8 months

BT RETAIL
Delivering a Superior Customer Experience

Providing end-to-end telecommunications services to more than 21 million customers in BT's retail division creates unique customer satisfaction challenges. BT, the largest communications service provider in the United Kingdom, is implementing a bold customer-centric strategy designed to dramatically improve the quality of service delivery while reducing costs by driving greater productivity. "To thrive in this intensely competitive industry, we must deliver innovative customer service programs that maximize satisfaction and long-term loyalty," says Pierre Danon, CEO, BT Retail. To support its strategy, BT Retail joined forces with Siebel Systems, Accenture, and Genesys to build eContact, the first fully functional multimedia contact center in the UK. It integrates all channels of customer interaction—including the telephone, Web, and email—within a single infrastructure. When customers call the eContact Center, the system automatically routes them to an advisor trained to respond to their specific type of inquiry. In addition, any of BT's 1.5 million registered users may send automatic emails or use text chat to engage in online discussions with sales advisors. What's more, during periods of low inbound activity, advisors can seamlessly switch to outbound telemarketing roles, such as contacting warm prospects that have recently been targeted by a BT direct mail campaign.

The benefits? Fast returns for BT's Homemover program with impressive gains in revenue, customer satisfaction, and employee productivity. And those are the kinds of timely improvements BT can count on.

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Proven CRM. Proven results.

Ten Critical Success Factors for CRM:

Lessons Learned from Successful Implementations

Although CRM software can deliver a wealth of benefits, many companies fail to appreciate that technology is just one component of a successful CRM initiative. Siebel Systems' experience with more than 3,500 customers and more than 1,000,000 production users has shown that the most successful companies approach customer relationship management as a complete business strategy, in which people, processes, and technology are all organized around delivering superior value to customers. Siebel Systems has also found that CRM success critically depends on the degree to which organizations follow implementation best practices. If your company is already involved in a CRM rollout or expects to be soon, the following checklist will help you realize the greatest return on your CRM investment.

Ten Critical Success Factors for CRM Implementations

1. **Establish measurable business goals.** It is critically important to define the specific business benefits you expect your CRM project to deliver. This may sound painfully obvious, but many projects fail because this "obvious" success factor is not observed.
2. **Align your business and your IT operations.** While CRM is driven by technology, it's not about technology. The point of CRM is to improve your customer-facing business processes; technology is only a means to achieving that end.
3. **Get executive support up front.** Because CRM projects are strategic initiatives, top management must actively support them. Without executive endorsement, a CRM initiative can be regarded as a gimmick or a fad.
4. **Let business goals drive functionality.** Just as a CRM project needs to be driven by business goals, so must every configuration decision. If a feature doesn't directly help your company better serve customers, you probably don't need it.
5. **Minimize customization by leveraging out-of-the-box functionality.** Customization is often the most costly, time-consuming, and complex component of a CRM implementation. Choosing a CRM application that meets your requirements out of the box can dramatically reduce the need for customization and reduce the total cost of ownership.
6. **Use trained, experienced consultants.** To ensure that your systems integrator can actually deliver a CRM project on time and on budget, look for consultants who are not only thoroughly trained in implementation methodologies for the applications you are considering, but also have real experience in deploying those applications.
7. **Actively involve end users in solution design.** Unless you solicit and act on end user input, you run the risk of implementing systems that confuse and alienate the very people they are meant to help.
8. **Invest in training to empower end users.** Training should not merely focus on demonstrating how to use the software's features and functionality. Instead, training should teach employees how to effectively execute the business processes enabled by the CRM system.
9. **Use a phased rollout schedule.** Most successful CRM projects follow a phased deployment schedule: Each phase is focused on a specific CRM objective and is designed to produce a "quick win"—that is, meaningful results in a reasonable amount of time (typically three to four months).
10. **Measure, monitor, and track.** Once a CRM system goes live, the organization must measure, monitor, and track the system's effectiveness, with an eye to continuously improving performance.

For more information,
visit **siebel.com/provenresults** or call **1-800-371-0407**

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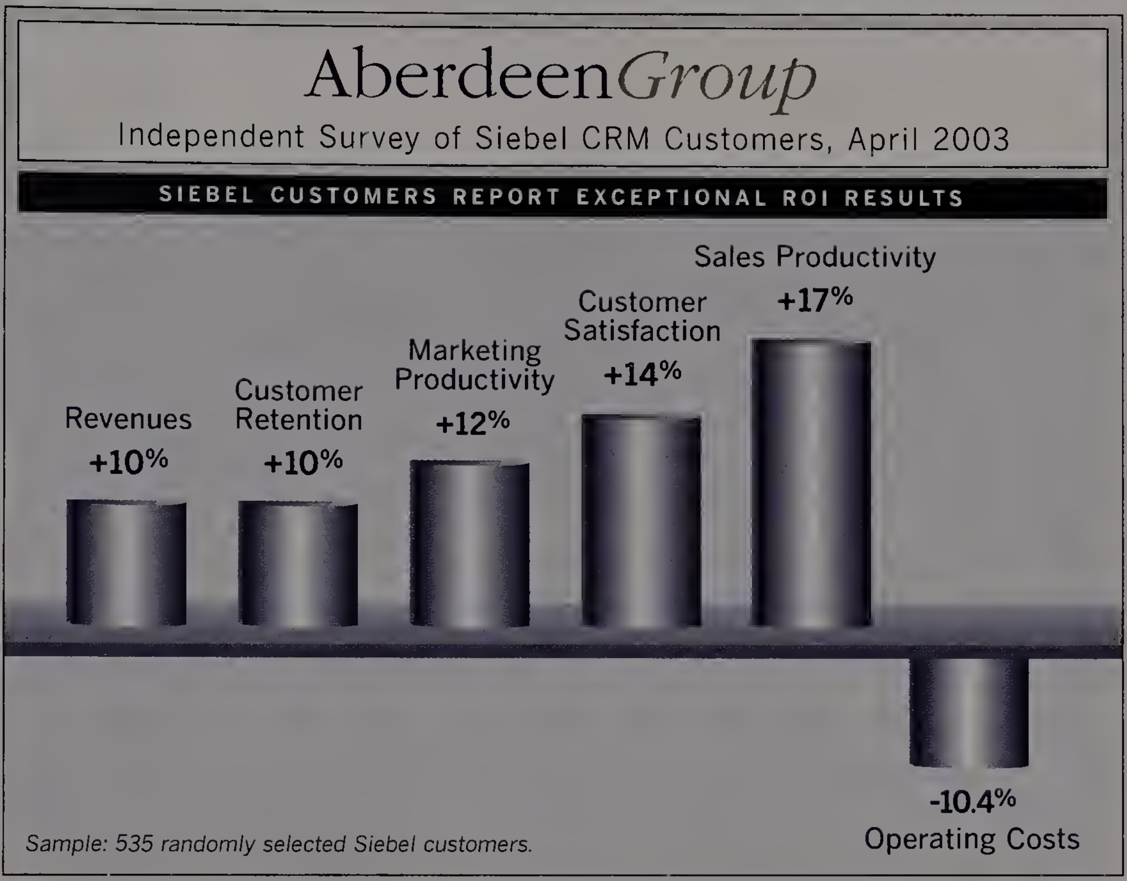
Aberdeen Group Asks: Does CRM Work?

Compelling Evidence from Siebel Customer Base



"Siebel customers believe that they have realized tangible and significant benefits from their CRM investments in the areas of sales, marketing, and service; productivity; customer retention; and revenue enhancement. The customers believe that these benefits have positive bottom-line impact on their corporate performance. Healthy majorities also indicate that their previous Siebel deployments were delivered on time and on budget."

—*Aberdeen Group Report, April 2003*

Greater than 90% of Siebel customers report that they would recommend Siebel CRM to others. And fully 73% plan to deploy additional Siebel CRM seats or install an upgrade in the next 12 months, building on their proven successes in meeting customer needs and achieving business targets.

As the global leader in CRM, Siebel brings ten years of proven domain expertise working with over 2,800 satisfied customers to its proven industry-specific CRM solutions. That's why more global companies rely on Siebel CRM for proven results, today and tomorrow.

To receive your free copy of the Aberdeen Report, call **1-800-371-0407** or visit Siebel at **www.siebel.com/provenresults**.

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ILLUSTRATION BY TOM NICK COCOTOS

I Want My QVC

Want customers' trust? QVC's senior VP of customer service advises using technology to build long-term relationships, not to maximize today's sale.

BY JOHN HUNTER

WOULD YOU LIKE A magazine subscription with that? How about a time-share in Florida? Maybe some hot-pink lipstick to go with that new power tool? Not interested? Well, we're not surprised. We're not interested either.

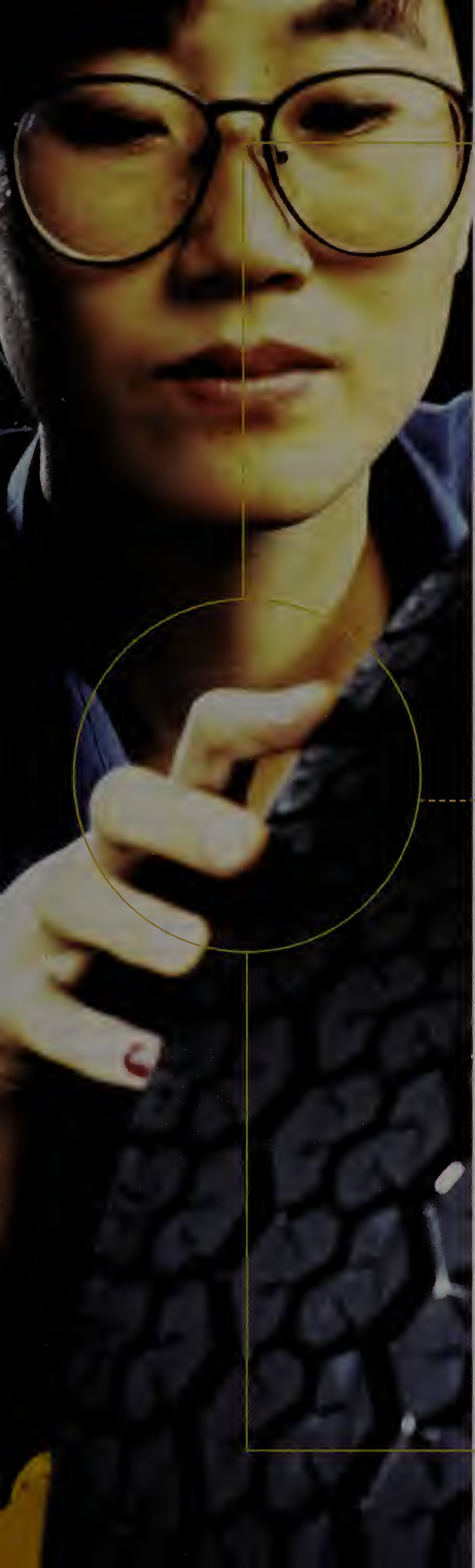
At QVC, we run the opposite way from customer relationship management companies that want to teach us how to sell a screwdriver to someone who bought a diamond ring. CRM may sound like a customer-friendly strategy, but it's really just a marketing tool that helps departments within a company work together to cross-sell and upsell to customers. Although cross-selling and upselling can be appropriate and effective under the right conditions, we've found that maximizing the sale generally doesn't help to achieve customer loyalty and repeat purchases. Building trust and consistency in consumer relationships is the key to success in the retail business.

We know that trust works, and we have evidence to prove it: More than three-quarters of our customers rated QVC 7 out of 7 for trustworthiness. Those customers tend to repurchase at a rate 80 percent higher than those who rate us a 6. They are also more willing to recommend us to a friend.

But while building trust is a very smart business strategy, it's not easy to pull off. As Doug Rose, QVC's vice president of merchandising brand development, says, trust-building is a time-consuming pain in the neck. Sure, it's tempting to skip all the boring stuff—including answering phones quickly and efficiently, keeping reps informed, making sure everything is customer-friendly—and just maximize the dollar productivity for the moment by constantly pushing products at customers. But we've learned that the best long-term strategy is to let the customer decide what to buy—in effect, to opt in to our system.

Focus on Tomorrow, Not Today

Sure, upselling and cross-selling can be effective when done properly. But at QVC we believe that it is more important for our long-term success to focus on creating a positive customer experience. So unlike fast-food chains that always ask "Do you



The Goodyear Tire & Rubber Company drives on Enterasys.

And increases productivity at more than twice the industry rate.

When The Goodyear Tire & Rubber Company looked to improve operational efficiency, it called on long-time solutions vendor, Enterasys Networks. The upgraded infrastructure—powered by an intelligent, high-performance backbone—has delivered dramatic increases in bandwidth to support growing user and application demands. At the same time, the enhanced visibility of the network has simplified management, reduced costs and maximized uptime.

The bottom line: Thanks to a *Business-Driven Network* from Enterasys, productivity jumped by 6%, allowing Goodyear to maintain its competitive edge.

For the full story, go to **enterasys.com/goodyear**

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want fries with that?" we carefully limit the amount and kind of upselling we do. We never upsell more than 15 percent of our customers in a given month and never make more than one offer a month to a customer. And we offer only products that are related to what the customer is buying. Whereas most companies would be thrilled with, say, an 8 percent upsell, our main concern would be not annoying the other 92 percent of customers by trying to sell them a Craftsman drill with their Birkenstock sandals.

While building trust is a very smart business strategy, pulling it off is a time-consuming pain in the neck.

CRM is not just about slick technology and seeing how much you can sell to your customers today; it's about building relationships so that you can sell to them tomorrow. If the technology doesn't suit our core beliefs, we don't invest in it.

We realize our views diverge from conventional CRM wisdom, but we believe that QVC customers sense and appreciate our efforts. While they might not come right out and say, "Thank you for not trying to sell me a bunch of stuff that I don't want or need," they vocalize it in other ways with their on-air testimonials, positive recommendations to others and their high satisfaction ratings. In fact, more than 25 percent of our customers come to us by word of mouth.

Don't Assume

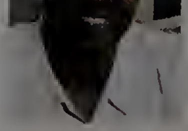
How, then, do we build trust? We start by being careful not to be presumptuous about what might interest the customer. Human beings are individuals. They are not motivated by demographics or marketing variables. They are often motivated by circumstances. So, rather than assume we always know what our customers want and bombard them with offers, we restrict our upselling efforts to a very small, targeted segment. The rest of the time, we are content to know that customers are calling simply to place an order for a particular item, and we strive to make that as easy as possible for them.

Our ability to give customers a positive experience depends on our customer service representatives, whom we refer to as customer advocates. Calling them advocates encourages them to listen for ways that QVC can best serve the customers. They then raise those concerns up the ladder. For example, our entire Denim & Co. proprietary fashion line was built on suggestions and comments from customers. It works too, since 93 percent of our customers rate their overall satisfaction with our representatives as excellent.

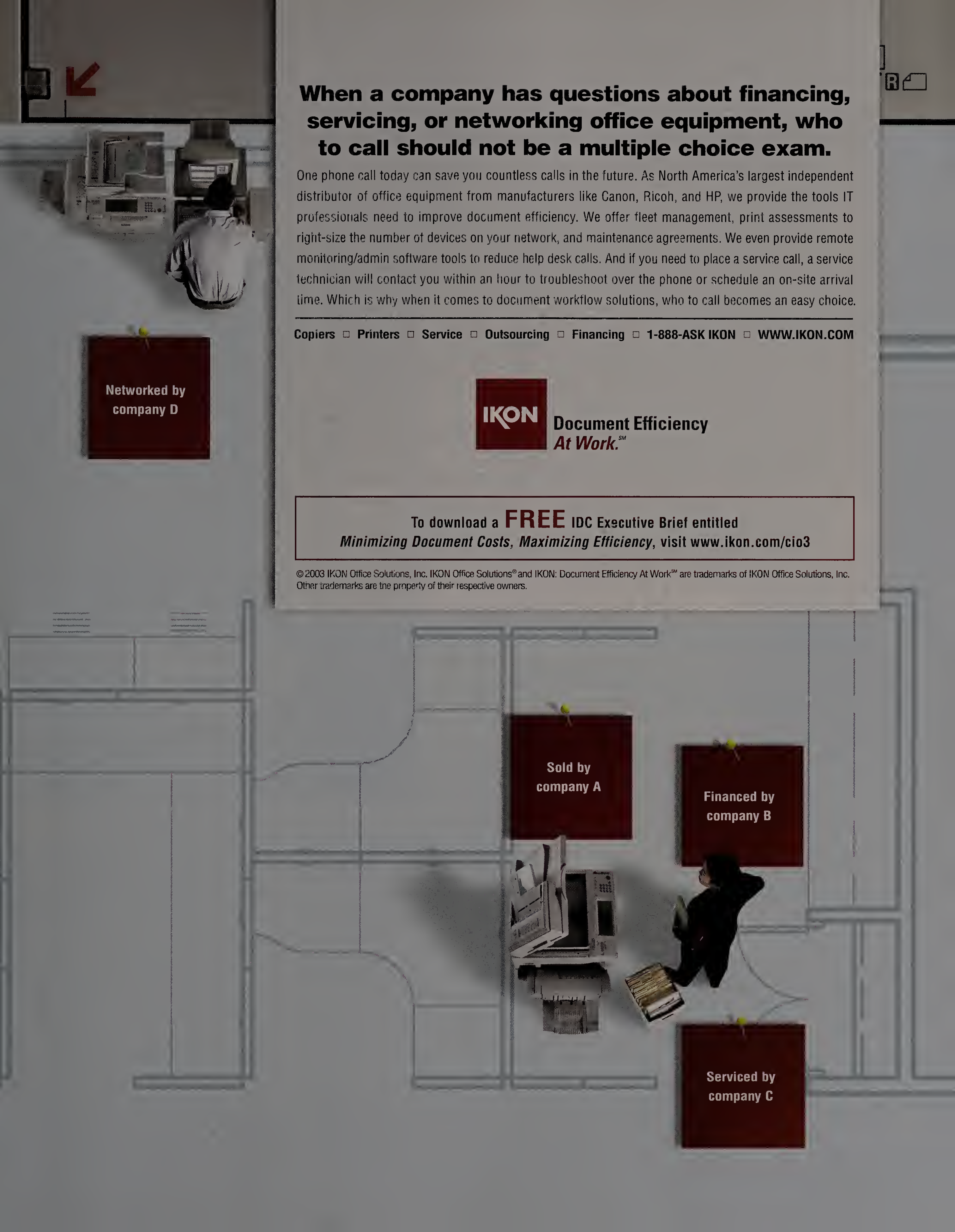
As the Internet started to take hold in the mid-'90s, customers began to expect instant access to a wealth of information. But our customer advocates were using an old, text-only "green screen" system, so they couldn't always answer customers' questions about products. In 1997, we began looking for more visual technology that would give reps better product information and help them serve customers more efficiently. We quickly decided to steer clear of CRM vendors who were touting cross-selling technologies and whose products didn't lend themselves to customization. Instead, we chose to build our own thin-client, browser-based customer service system. We developed it from the representatives' point of view based on how they interact with customers.

The customer service system doesn't have any function keys or green screen text that reps have to read. It is set up thematically with help tips strategically placed throughout. No matter what screen the reps are looking at within the system, it tells them what they could be doing for the customer and gives them a variety of options. The intelligence and processing power in the system allows reps to spend more time actually hearing and dealing with the customers' issues and less time trying to figure out how to navigate among screens. Customers have told us they value fast ordering. The new system has allowed us to decrease our average order-entry talk-time from two minutes to one and a half, and our average customer service talk-time from four minutes to three. We know the system enhances our strong relationship with our customers because the number of customers who gave us an excellent service rating went up from 87 percent to 91 percent. And our business continues to grow: Last year we sent out 90 million packages and handled more than 130 million phone calls. Beyond being a "nice" strategy that helps us interact better with our customers, QVC has saved approximately $4 million a year as a result of faster customer data processing and shorter talk-times.

QVC will continue to focus on providing an exceptional and satisfying customer experience, using technology when appropriate as an enabler. After all, it's the people behind the technology who create the magic. We respect our customers' privacy and will keep working to earn their trust, and not let CRM hype or the fad of the day distract us from focusing on customers. We've given our people great tools and the power to advocate for the customer, and they do. Fortunately for us, it seems to work. CIO



Want a CXO's perspective on a specific topic? Tell us at *cxoperspectives@cio.com*. John Hunter is senior vice president of customer service at QVC in West Chester, Pa.



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Tom Davenport | The New Work Order

Retooling the Knowledge Worker

ILLUSTRATION BY GLENN MITSUI

A Measurable Proposal

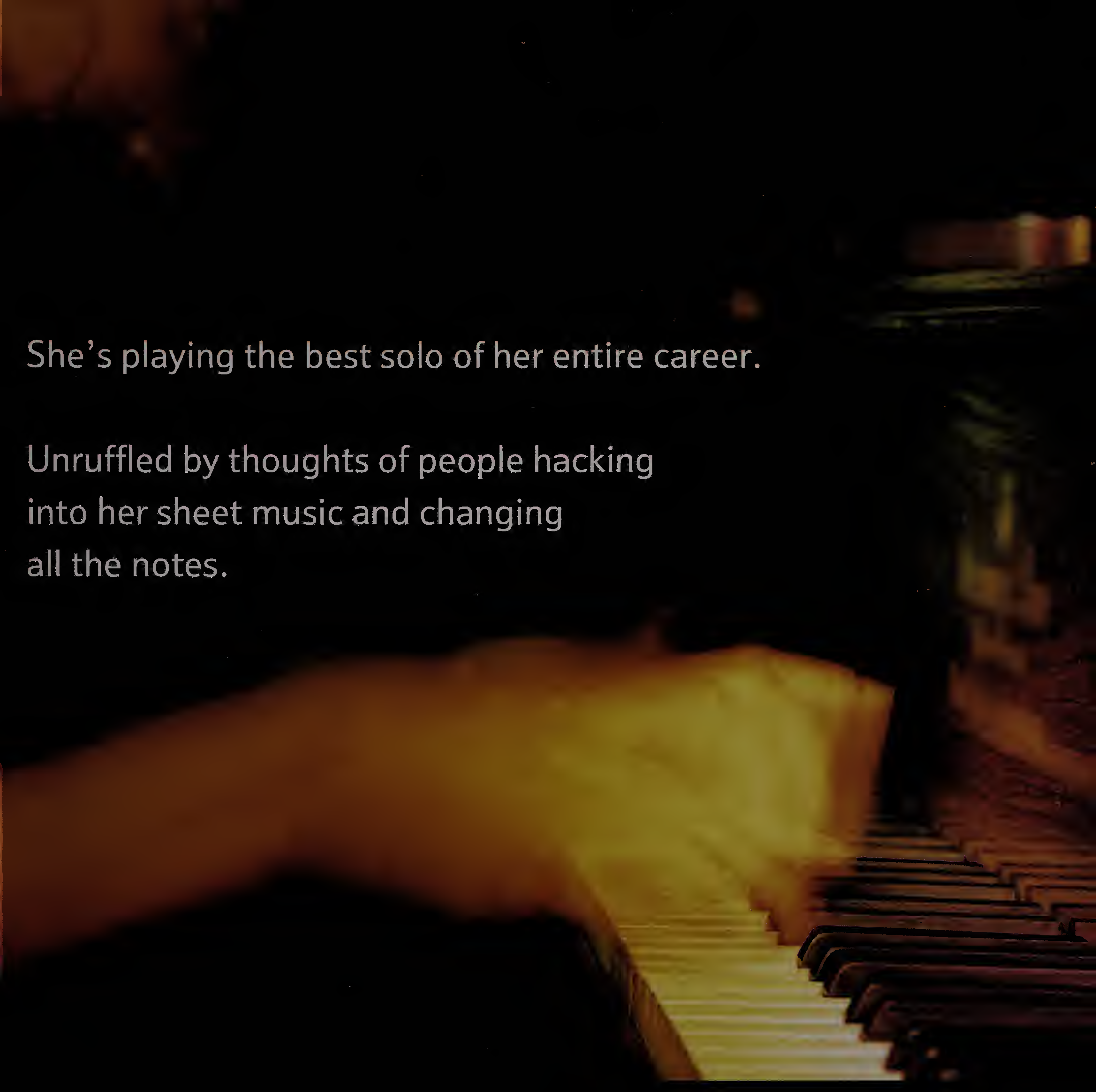
What if a knowledge worker's processes could be quantified? It might just be the new reengineering.

I'VE JUST COAUTHORED a book on new ideas in business. (It's called *What's the Big Idea?* Only $29.95. Operators are standing by for your call.) As a result, people keep asking, "So what's the next big thing?" Mind you, I missed e-commerce and the Internet, so I could easily be wrong. But I'm betting one particular idea will succeed in the next few years, and the nice editors at *CIO* are going to let me write several columns about it.

This big idea involves knowledge work and knowledge workers, and the technologies they use to do their jobs. My thesis begins with first identifying who a knowledge worker is and (especially) who a knowledge worker isn't. They're the people who, as a primary aspect of their work, create knowledge, share it with others, or apply it in decisions and actions. By my classification of Bureau of Labor Statistics data, we have about 36 million of them in the United States alone—that's close to 30 percent of the working population. Think of knowledge workers as the horses that pull the plow in sophisticated economies—they're the research scientists, the IT architects, the strategic planners, the doctors, the lawyers, the Indian chiefs. Then consider where we would be in terms of innovation, science, management, marketing and high-level services without them. Nowhere.

But how have we treated these invaluable human resources? Have we given them the attention they deserve? Have they been the focus of our best efforts at process improvement, the design of effective work environments, and the studied application of information technology? Hardly. We have done little to help our economy's most valuable capability (and I'll elaborate in later columns on the various domains of scandalous inaction).

Now, I'm no Marxist; but you can never discount the importance of class structure. Knowledge workers as a class "own the means of production." They have largely escaped systematic scrutiny because they don't really have the desire to turn the analytical lens on themselves. Knowledge workers don't like to be told what to do; heck, they don't even like to be told that there is a common structure and flow to their work. Their work is



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more variable and unpredictable than production or administrative work, so if you do want to understand it, you have to look hard and long. Much of what they do is invisible—it takes place inside the human brain. Eliciting how a doctor makes a diagnosis or how an investment analyst chooses a stock has never been easy. And finally, some of these groups of workers have their own equivalent of unions—professional associations—that have successfully resisted encroachment from the outside.

When it comes to knowledge workers, we pretty much hire smart people and leave them alone. No quality measurements, no Six Sigma, no reengineering. We haven't formally examined the flow of work, we have no benchmarks, and there is no accountability for the cost and time these activities consume. As a result, we have little sense of whether they could do better.

I'm not advocating heavy-handed reengineering, but knowledge workers are too important to be left alone completely.

Believe me, I'm not in favor of a heavy-handed, top-down reengineering initiative, but it seems these knowledge workers are too important and too expensive to be left alone completely.

Which brings me to my big idea (finally!): I believe that the next big process change initiative should involve knowledge work. Let's examine how we do strategy, marketing campaigns, mergers and acquisitions, and R&D programs. Maybe we could even take on the process of management. This time—unlike in days gone by with reengineering—we should involve those who do the work. I see no reason why participative, creative efforts can't improve knowledge processes just as they improved the more structured, less knowledge-intensive type.

Technology and Knowledge Work

For several decades, whenever we've had to automate a function, we've undertaken a good deal of systematic thinking beforehand. We do detailed task analysis and requirements definition; we model process and information flows. Careful thought goes into what kinds of hardware and software might be relevant to the work. Cost-benefit analysis is applied. Some thorough organizations even do post-implementation evaluations.

What do we do when a knowledge worker needs some technology? We say, "Here's a PC and a phone," and recommend software already installed in a one-size-fits-all approach. The more ambitious IT shops might even provide a laptop for highly mobile workers, or, if we're really progressive, throw in a BlackBerry. But if you want a cell phone, you're on your own.

What are the chances that your organization will supply you with policies or even ideas about how to use these things? Would you like some guidelines on managing your e-mail, your online collaborative team rooms, your IMs, your voice mailboxes? Fat chance. Figure it out yourself. At best we'll provide an update on "Using Microsoft Outlook" or a standardized time-management course. If you want to figure out how to integrate all your various devices and determine what information you really need and get control of your e-mail and use the right application for the right task and be really productive, you'd better be prepared to do it on your own and take a lot of time to do it. But do you do this? No. You have a life.

The good news: The problem is at least beginning to be studied. The Information Worker Productivity Council is a new organization comprising technology vendors and integrators. Initiated by Microsoft, it also includes Accenture, BT, Cisco, Hewlett-Packard, SAP and Xerox. We (I confess to being involved on Accenture's behalf) are also working with MIT, academics at several other institutions and the American Productivity and Quality Center. A variety of information work processes are under study, but one project in particular addresses the personal information and knowledge environments of knowledge workers like you and me. It's early days for this group, but I have high hopes for its work.

The Other Stuff

Knowledge workers need good processes and technology, but they also need an organizational structure that doesn't get in their way; an office that facilitates both quiet, concentration-based work and the free interchange of ideas with coworkers; the ability to both stay put and move around; and the right combination of team structures and individual accountability.

What's the most productive work environment for knowledge workers? Organizations have adopted a wide variety of alternative arrangements for knowledge work. Cubicles. Hoteling. The problem is that we don't learn much from our "experiments." We adopt new ways of officing, organizing and operating based not on rational experimentation and learning, but rather on the four Fs: fads, fashions, faith and finances.

I'm just getting started here with my righteous indignation about knowledge worker problems and privations, but I've run out of space. Stay with me for the next few issues as I continue to work out my grievances. By the end of your summer vacation, we'll have solved all these problems!

Tom Davenport is director of the Accenture Institute for Strategic Change and professor of IT and management at Babson College. You can reach him at *tdavenport@babson.edu*.

Confessions of the World's Most Demanding CIOs.

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Ed Leonard, Head of Technology, DreamWorks® Animation

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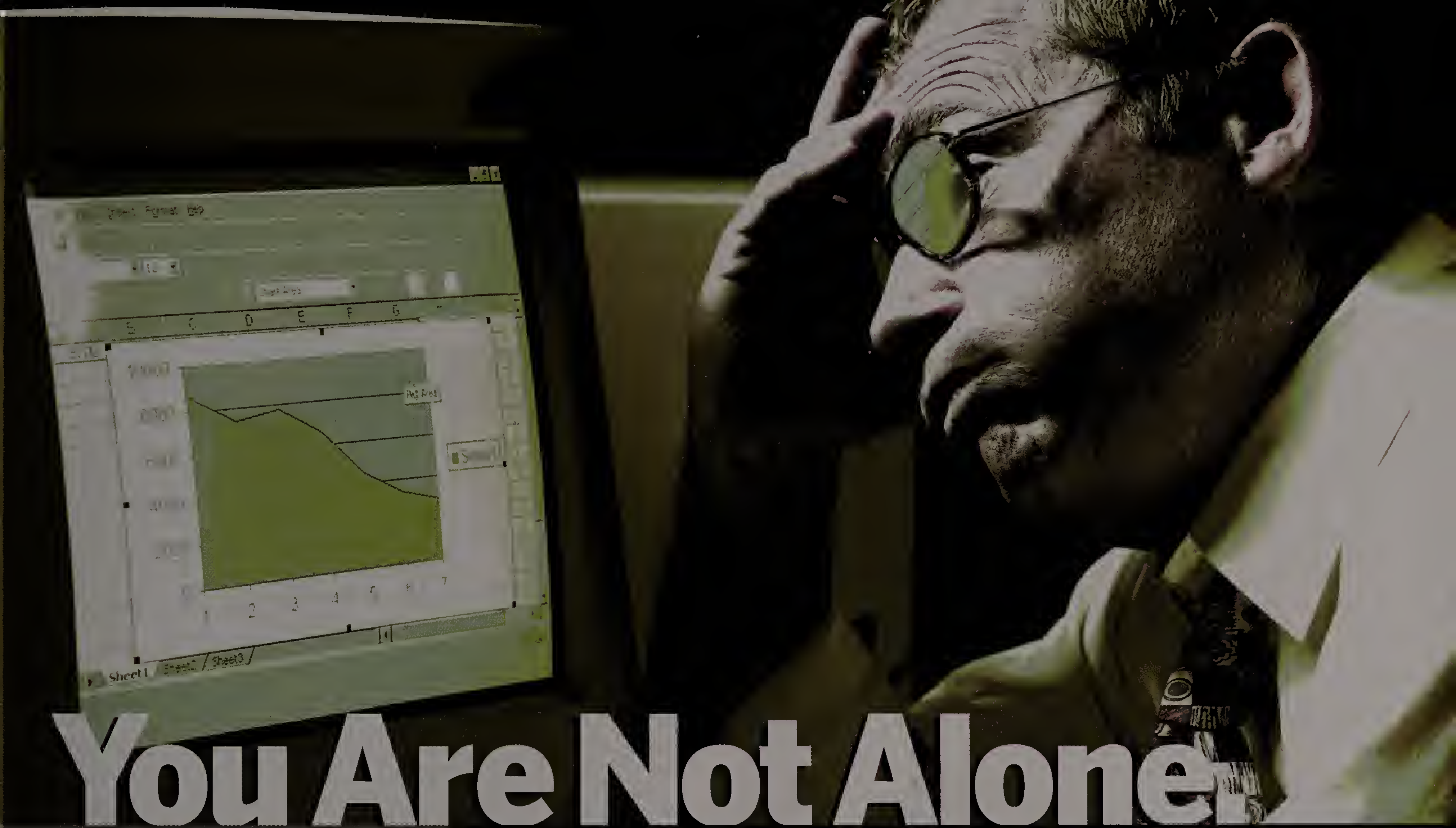

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John Doucette, CIO of United Technologies, is an offshore outsourcing veteran, sending work to India since "back when you didn't want to be doing this."

PHOTOGRAPHY BY TRACY KROLL

Outsourcing to India can provide a huge payback—if you're willing to work at it. United Technologies and its subsidiary Otis Elevator share their hard-earned lessons.

BY STEPHANIE OVERBY

Inside Outsourcing in INDIA

DON'T BOTHER TRADING HORROR STORIES about outsourcing to India with John Doucette. He'll trump you every time. "I was doing this back when you didn't want to be doing this," says Doucette, CIO of Hartford, Conn.-based United Technologies, who first sent coding work to India more than a decade ago when he worked at General Electric. "Most CIOs don't have any clue what it used to be like. You had people who couldn't speak English. The telecommunications were terrible. It was awful trying to transfer files back and forth."

Head down the highway 10 miles to Otis Elevator in Farmington, one of United Technologies' six business units, and you won't get much sympathy from offshore veteran David Wood either. "Back then, there was not a lot of capability in India," says Wood, who set up a captive development center in India in the early '90s when he was CIO of Otis Asia Pacific in Singapore. "It was a phenomenon that was only just starting," adds Wood, now Otis's director of systems development.

Today, however, Indian outsourcing is one of the best ways for CIOs to cut application development and maintenance costs, deal effectively with the peaks and valleys of software demands, and focus on more strategic work. Depending on whom you ask, anywhere from one-half to two-thirds of all Fortune 500 companies are already outsourcing to India, and, according to Forrester Research, the amount of work done there for U.S. companies is expected to more than double this year. If you're not already sending some

Reader ROI

- When outsourcing to India is right for you
- How to manage a successful relationship with an outsourcer in India
- Strategy and processes for Indian outsourcing

development or maintenance work to Mumbai or Chennai, chances are you're either looking into it or your CFO, salivating over potential labor cost savings of 70 percent, is wondering why you aren't.

But despite its popularity, successful outsourcing to India is still difficult. While the market has matured, telecommunications have improved and English fluency in India has flourished, challenges still remain. Cultural issues creep in, service-level expectations are set too high, transitional costs can be foreboding, and ongoing relationship management is expensive and labor-intensive. And although United Technologies is an Indian outsourcing success story, to be sure—the company has already saved $50 million and attributes $30 million annual savings to it—United has had to overcome some obstacles. Even old hands like Doucette and Wood make missteps, and they agree that outsourcing to India is a work in progress—a journey, not a destination. But they are still big believers of the India phenomenon. They recently shared with *CIO* some of the lessons they've learned along the way.

Big Changes at a Big Company

For years, $28.2 billion United Technologies Corp., or UTC, acted primarily as a holding company for its subsidiaries—Carrier, Hamilton Sundstrand, Otis, Pratt & Whitney, Sikorsky Aircraft and UTC Power—with offices in nearly 180 countries. Each subsidiary had its own enterprise systems, processes for sourcing projects and IT organizational structures. UTC continues to function as a holding company, but it also provides support for its subsidiaries for common business processes such as HR and indirect sourcing. In 2001, Chairman and CEO George David decided it was high time for UTC to reap some benefits from the combined size and power of its companies. He issued a decree that UTC squeeze $500 million out of its annual $3.5 billion direct procurement costs. Doucette, who had just been promoted to CIO of UTC, was responsible for $40 million of the mandated savings.

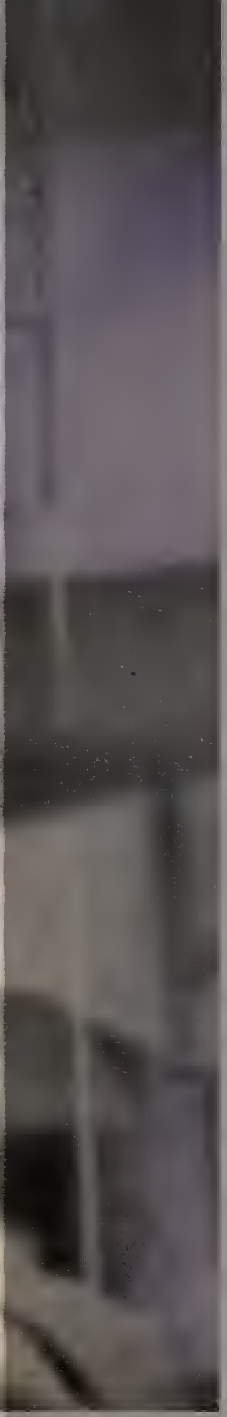
In addition to doing the more obvious things such as centralizing back-office IT functions and standardizing all locations on certain platforms, Doucette's experience told him that he could wring a hearty chunk of change out of application costs by sending more work to India. With the help of UTC's sourcing office in the finance department, Doucette ran the numbers. The office estimated that he could cut $28 million of an annual $125 million spent. The savings would come as UTC began replacing high-priced U.S. contractors with less expensive Indian labor (for a look at UTC's offshore growth, see "Outsourcing Explodes," right).

UTC's subsidiaries had begun outsourcing to India long before UTC set up a corporate strategy to support it. In addition to the Pune, India-based development center Wood set up for Otis Asia Pacific in 1995, Otis's U.S. headquarters began sending projects to Bangalore-based Wipro Technologies four years ago when Doucette was CIO of that division. "It wasn't cost-driven at the time. It was just to get the work done," Doucette explains. But two years later, he decided it was time to develop an overarching strategy and process for sending software work to India.

First he revisited the decision to make India his country of choice. New players such as Russia and China had joined the IT services game, and Doucette gave them a look. Ultimately, however, he decided India was still the best choice because of the maturity of the software companies operating there. "It's taken India 10 years to get to where they are," Doucette says.

Vetting the Indian Vendors

Then it was time to start crunching some serious numbers. In order to help UTC's divisions buy in to the idea of outsourcing to India and leverage the conglomerate's scale, Doucette thought it best to create a list of preferred vendors and negotiate prices up front. With part-time help from three employees in UTC's sourcing office, he issued RFQs (what UTC calls RFPs) on the



> “We should have had the basic processes well-thought-out, documented and understood by everyone *before* the team went offshore.”
> –David Wood, director of systems development, Otis Elevator

three main areas of work UTC would need done: mainframe, e-commerce and ERP programming. The company received bids from 43 vendors via an automated online system called FreeMarkets—basically an eBay for corporate procurement in which UTC holds a stake. From there, the sourcing team began whittling down the list based not only on bid prices (Doucette ruled out the five lowest bidders), but on 500 discrete criteria in the areas of service offerings and capabilities, price, management practices and procedures, customer base, and business profile and strategy. Holding a giant spreadsheet, Doucette explains how the sourcing staff scored each vendor from one to five on each criterion, giving more weight to service offerings and price than to other, less important criteria such as business strategy and customer base.

The sourcing folks informed their scoring not only with their own experience but with input from those at UTC already doing offshore outsourcing, visits to the companies and interviews with customers. The sourcing staff trimmed the list down to 20, and then Doucette and the other UTC business unit CIOs settled on five preferred providers—Wipro Technologies, Mumbai-based Tata Consultancy Services (TCS), HCL Perot Systems (HPS) and HCL Infosystems (both based in Noida), and ITC Infotech India in Calcutta. Such a strategy is common. “More than 70 percent of companies going to India are putting together lists of two or three vendors to work with,” says Dean Davison, vice president of service management strategies with Meta Group.

Finally, Doucette signed contracts with the five companies, creating fixed prices for development and maintenance work for all UTC divisions. The entire process took about three months.

What Stays and What Goes

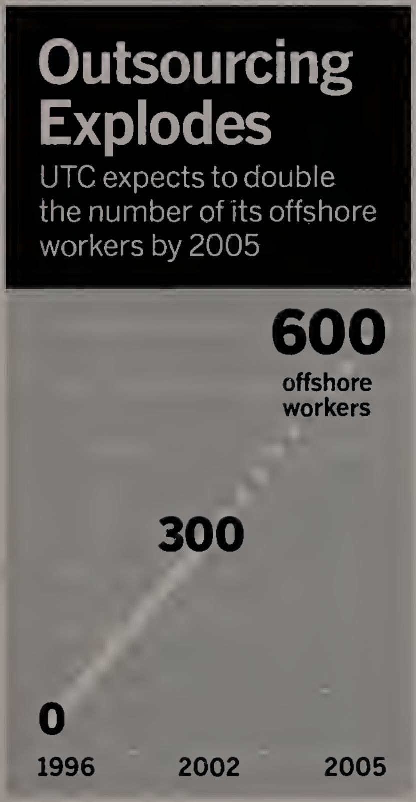
The vetting process was only the beginning. Doucette also had to create an overarching strategy for outsourcing to India. Taking the time to make such a strategy clear is something novice CIOs might skip, but that would be a mistake. “There’s much more to going offshore than sending out an RFP, selecting a vendor and doing it,” says Marty McCaffrey, executive director of Software Outsourcing Research. “You have to go to extraordinary lengths to establish goals and objectives first.”

Doucette created a sourcing plan stating what goes offshore, what goes to U.S. outsourcers and what stays at UTC. His criteria for what goes where are pretty simple. “First, you have to ask yourself if the work is strategic. If the answer is yes, you should keep it internal,” Doucette says. “Then, if it’s not strategic, you have to ask yourself if it’s going to the lowest-cost source. If you’re not the lowest-cost provider of that service, you need to contract it out.”

The result of that analysis: Doucette and his divisional CIOs send all help desk, network, desktop, midrange, mainframe and Web-hosting work to Computer Sciences Corp., and have a goal of sending 80 percent of all application development and support to India. That means UTC and its subsidiaries keep in-house IT leadership, project management, business analysis, and (eventually) 20 percent of application development and support. Keeping a certain number of skilled developers in-house ensures that UTC and its divisions don’t get overcharged by an outsourcer. “When I was at Otis,” Doucette says, “we put out an RFQ for an e-commerce project, and we got bids ranging from $60,000 to $3 million. If you don’t have someone in your operation who knows how much that should cost, then how can you outsource it?”

Outsourcing Explodes

UTC expects to double the number of its offshore workers by 2005



It’s a mistake many CIOs make. “One way to circumvent that is to have multiple vendors continually bidding against each other,” Meta Group’s Davison says. “Another way is to keep people in-house who are really smart about those things.”

In setting standards for what should go to India and what should stay, Doucette also took into account that UTC’s six subsidiaries have very different structures and needs. Companies such as Otis, with most of their IT departments centrally located at headquarters, were good candidates to go offshore. Carrier, however, was not. It has 49 manufacturing plants scattered across the United States with a handful of IT people located at each one. "When creating an offshore model, you really need to look at your own business model and where your IT staff is, and customize it based on that," explains Doucette.

Another issue Doucette had to consider was the companies' security needs. While security is clearly a priority for every UTC company (it uses secure private networks, stores most code stateside and uses software that limits offshore network access), UTC simply cannot put any military-related work offshore. Pratt & Whitney, Hamilton Sundstrand and Sikorsky Aircraft all do government work, which accounts for 16 percent of UTC's combined revenue. "We have to split up military and commercial work and be careful about what we give them access to," Doucette says. "It's a struggle because we're trying to work together as much as we can to save money. For example, if Pratt & Whitney and Carrier are in the same building, they share a network. But that means I can't put that network support in India even though I'd like to."

Otis Sets Up a Dedicated Offshore Center

While Doucette makes overarching strategy decisions and handles some vendor relation issues on a macro level from his penthouse office on the 26th floor at UTC headquarters, the day-to-day management occurs at the individual business level. At Otis, that task falls to Wood, sitting in his office amid a cluster of Otis buildings off I-84.

Though Otis was sending work to Wipro before Wood transferred from Otis Asia Pacific in 2001, Wood has made significant changes to the relationship during the past two years. The biggest change: moving from a project-by-project service delivery model to having Wipro set up a dedicated offshore development and maintenance center for Otis (for a closer look at dedicated centers, see "The Hottest Trend in Outsourcing Management," Page 68).

"When I showed up here, Otis's experience outsourcing to Wipro was in full swing, but it was not mature," Wood explains. Otis would have a specific project and requirements; Wipro would come in and provide a proposal and a quote. If accepted, the outsourcer would do the project with roughly one-quarter to one-half of its people offshore and deliver it to Otis. Otis retained Wipro's personnel for what Wood calls a 30- to 60-day "warranty" period, after which they would disappear until a new project came along or modifications had to be made. Otis was saving $500,000 a year over doing the work internally, but this model was becoming burdensome. "It's a cost-effective model for doing a single project, but when you build up a portfolio of applications, it's very inefficient," Wood says.

In 2001, Otis had a total of 30 applications, and the old model wasn't working. Wood proposed that Otis and Wipro transition to the dedicated center model, where Wipro would assemble a permanent team in Bangalore to work on nothing but Otis projects. "It's basically a standing army of resources provided by the vendor that addresses all of your application needs," Wood explains.

"The benefit is that people assigned to the project feel more attuned to the company, so turnover rates are lower," says McCaffrey of Software Outsourcing Research. "And those vendor personnel are acquiring long-term knowledge about your systems, so you have a more productive worker."

Wood and four of his employees spent six months analyzing the business case, creating a proposal for CIO Ron Beaver, who approved the transition. "We went through the kind of phases a lot of companies go through in outsourcing to India," explains Beaver, who performed Wood's role for five years before taking over as CIO. "You don't wake up one day, fire everyone and send it all to India. You have to get comfortable with it, find the right partners and evolve in a way that makes sense for your business."

Wood then conducted the vendor bidding and selection process. Much like UTC did at a higher level, he defined Otis's goals in outsourcing, reestablished reasons to go to India rather than other countries, and conducted Otis-specific research on the vendors. The only thing Wood didn't have to do was negotiate price; Doucette had taken care of that. In the end, Otis stayed with Wipro,

The Secrets of Their Success

10 tips from John Doucette and David Wood

1. Determine whether your IT organization is ripe for outsourcing to India. A centralized application development and maintenance organization is much easier to relocate than a dispersed one.

2. Decide what is strategic to your IT department, and hold on to it.

3. Sign on multiple vendors as a way to keep costs in check and to provide access to a variety of technical skills.

4. Keep a certain percentage of skilled developers in-house to monitor offshore service and rates.

5. If outsourcing to India is a long-term plan, develop a long-term relationship. Don't manage projects one at a time.

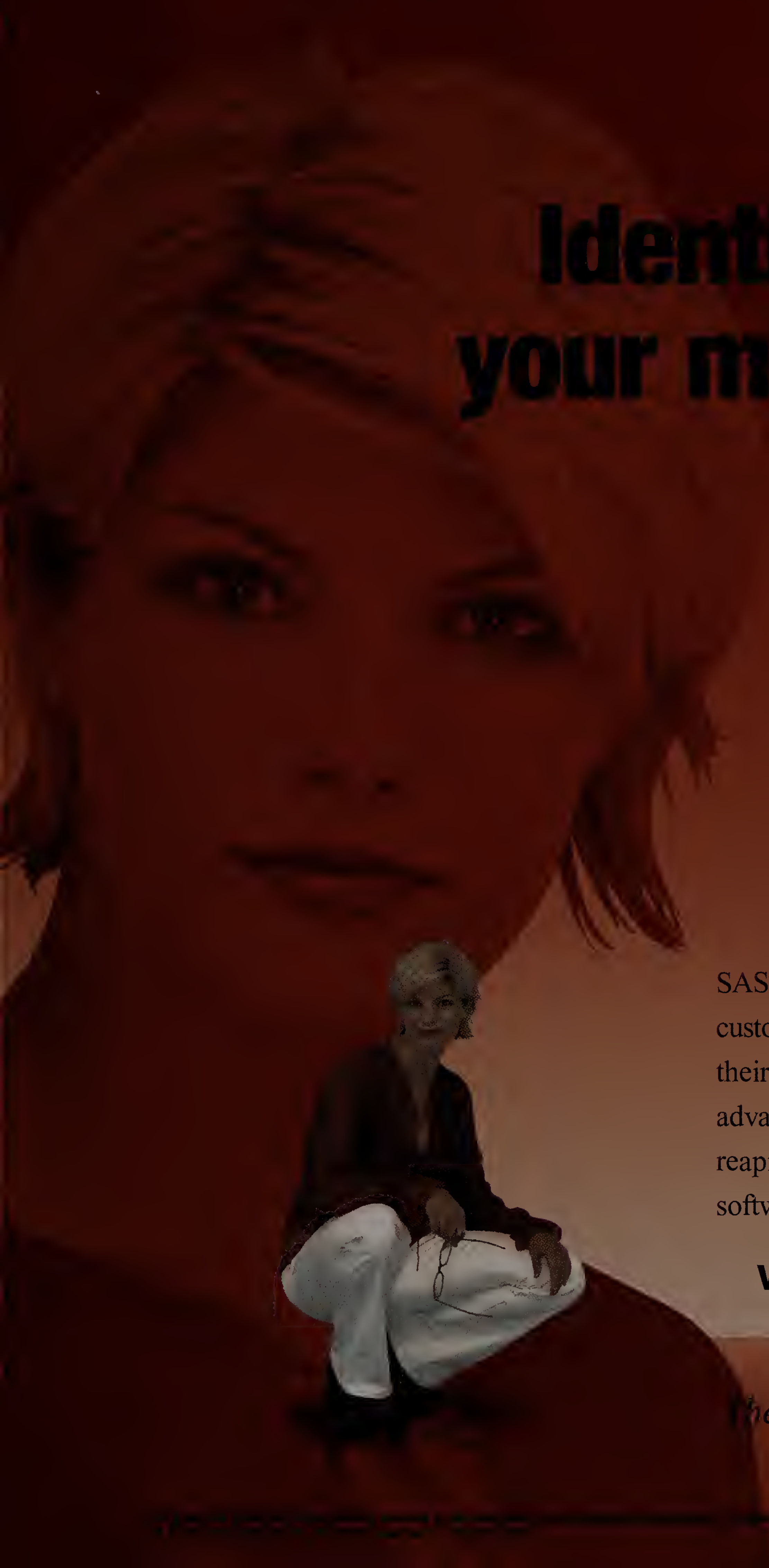
6. Be selective about the vendor's proposed project leader, and host him stateside. Make sure he is empowered to make key decisions minus the red tape.

7. Spend a month creating a comprehensive transition plan, documenting the knowledge transfer process.

8. Establish rock-solid application development and maintenance processes.

9. Create a robust in-house QA department.

10. Insist that the vendor's account owner conduct monthly and quarterly reviews, and do the same in-house. –S.O.



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doing $3 million worth of work a year with the Indian company.

The Make-or-Break Transition Phase

Then the real work began.

As is the case with almost all offshore work, the most critical phase is the transition. "The first big issue was knowledge transfer. We were sitting on a large inventory of applications built by a variety of vendors," Wood says. He and the project leader from Wipro spent a month creating a transition plan. "The transition period requires bringing a few people who will eventually be working offshore onsite to go through the application, get an understanding of it and create the documentation that's required," Wood says. Offshore developers were paired with someone at Otis who knew the application or with someone from the vendor who created the application. "Creating transition documentation is critical to the vendor getting off to a good start as quickly as possible," says McCaffrey. Otis created an overarching transition plan that included writing standard technical documentation outlining such things as file-naming standards, and hardware and software environments; creating a high-level project plan; identifying the best onshore and offshore managers; and providing opportunities for knowledge transfer such as job shadowing.

"When you're outsourcing to India, you need the rigor in your QA organization to be tenfold over what it was before to make sure what gets built is what was agreed upon."

–Ron Beaver, CIO, Otis Elevator

Your Monthly Metrics Checklist

Otis Elevator tracks these benchmarks monthly to gauge how its offshore work is proceeding

- Severity level of incidents (vendor response time)
- Uptime requirements
- Quality metrics, such as turn-back (defect) data capture, root cause analysis and process repair
- Productivity metrics, such as function points per vendor employee
- Performance of tools and data capture methods used for measurement against service-level agreements
- Budget versus actual cost of reporting and analysis
- Capacity utilization and planning
- Workflow automation and process monitoring

The transition stage also requires close collaboration with the vendor's project leader who works onshore throughout the course of the relationship. The onsite project leader is basically a go-between, making sure the work done at Otis in terms of project requirements and specs translates into the right coding or maintenance work in India. Doucette says the project leader is the most important person in the Indian outsourcing proposition. "The mistake we made initially at Otis was trying to have our own employees communicate with the offshore workers in order to save as much money as possible," Doucette recalls. "We found we needed a strong business analyst from the offshore company working onshore as an intermediary."

Once few and far between, competent business analysts and project leaders are no longer in short supply in India, Doucette says. But that doesn't mean Doucette and his reports rest easy. "We are ruthless on the people who come in," he says, recalling the time at Otis when he sent the vendor's proposed project leader, who was a database administrator lacking business analysis and project management skills, back to Bangalore after just four hours.

Meanwhile, in Bangalore, Wipro was setting up the Otis shop so that employees had a development environment to plug into when they got back. The transition took four months—January to April 2002—and Otis work was at a steady state by June.

In addition to being the most critical stage, the transition period is also the most costly because of high rates for offshore workers onsite and the set-up costs. Otis spent $420,000 on the transition and didn't

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> "The mistake we made initially at Otis was trying to have our own employees communicate with the offshore workers in order to save as much money as possible."
> –John Doucette, CIO, United Technologies

recoup that investment and start saving money for a year. Today, with 75 percent of the 20-person offshore team working in India and 25 percent working at Otis, Wood says the company is saving $1.4 million a year on application development and maintenance, a nice complement to the annual $7 million it has been saving by using its own captive development center of 70 employees in Pune. And labor costs haven't been the only source of savings. Some of the mainframe replatforming Wipro is doing for Otis is yielding big returns. For example, one mainframe application at Otis that used to cost $1 million a year to maintain, and has since been moved to a Unix environment, now costs just $200,000.

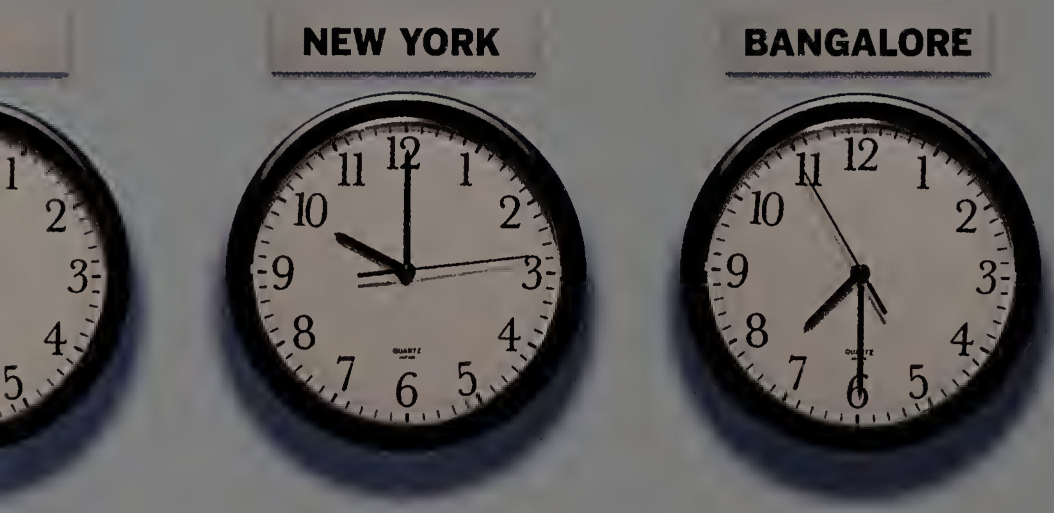
The Importance of Process

If you want to know how important Wood

The Hottest Trend in Outsourcing Management

When to set up a dedicated offshore center—and when not to

ESTABLISHING A dedicated offshore development center (ODC) is the latest trend in Indian outsourcing—witness United Technologies subsidiary Otis Elevator, which created one with Bangalore, India-based Wipro Technologies. After two years of sending software work to India on a project-by-project basis, the Farmington, Conn., company had accumulated a portfolio of 30 applications, all requiring ongoing maintenance work. Each time work needed to be done, Wipro had to assemble a new team. A month after the project was complete, the team would disassemble, taking with them their knowledge and expertise. Today, Otis instead has a permanent 20-person Wipro team devoted to its application and development needs.



Although the capability to set up such ODCs for clients has been available in India for years, this delivery model is just now catching on, as CIOs' comfort levels with sending software work to India have increased. "This has been one of the hottest growth areas [in Indian outsourcing]," explains Marty McCaffrey, executive director of Software Outsourcing Research. "Besides the potential cost savings and other benefits, a major reason this is increasing is because clients are making larger offshore commitments. More and more deals are at 100, 200, 300 [full-time equivalents offshore] right from the start and are a result of the maturing of the industry."

The benefits of a dedicated offshore center are clear: sustained knowledge retention, better rate negotiation, speedier ramp-up times for new projects and increased productivity. Additionally, foreign workers even halfway around the world can feel more connected to the client company, as they are often located in a private building or floor with the client company's logo adorning the wall. The feeling of being part of the customer's company can often translate into reduced turnover and better quality.

But a dedicated center is not the best choice for every situation. Setting up an ODC at an Indian vendor comes with its own unique contractual requirements. For instance, in such an arrangement, most vendors require customers to commit to a certain number of man-years of work—in Otis's case, 20 man-years. The commitment makes the deal worthwhile to Indian companies, which have to set up the labor and infrastructure requirements necessary for an operational ODC. If you cannot adequately forecast your minimum annual manpower requirements and clearly identify the work that thinks application development and maintenance processes are to working well in India, all you have to do is listen. In the course of an hourlong discussion of offshore outsourcing, Wood uses the word *process* 48 times, sometimes up to four times in one sentence. "You cannot underestimate the importance of structuring and defining your processes, putting tools in place to measure the performance of those processes, and having processes in place to improve those processes," he says. Sounds simple, yet complicated. Which, Wood found out, it is.

Indian companies have spent years honing rigorous development methodologies, and many are certified Level Five, the highest level of Carnegie Mellon University's Capability Maturity Model (CMM). That means they've moved ad hoc, chaotic software processes (Level One—where the average U.S. company is) to mature, disciplined software processes that allow for continual improvement in quality. But the CMM level of your Indian vendor means nothing if it is not complementing similarly rigorous processes in-house. "The vendor can only operate, at the most, two levels higher than the customer," Meta Group's Davison explains. "If you continue to run at a Level One, the vendor will have to put more people onsite to compensate for your inadequacies, and they'll spend all of your savings."

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Wood didn't begin investing in defining and implementing those all-important processes until the end of the transition phase, which was much too late. "It should have been the first thing we had done," Wood explains. "We should have had the basic processes well-thought-out, documented and understood by everyone *before* the team went offshore." If Otis's offshore development center was larger—say, 200 people rather than 20—that mistake would have been fatal; cost savings and quality would have been sacrificed completely, Wood says.

Also vital to a viable Indian outsourcing relationship is having robust quality assurance processes. "When you're outsourcing to India, you need the rigor in your QA organization to be tenfold over what it was before to make sure what gets built is what was agreed upon," Beaver says. That's something that's still being developed after the fact at Otis, according to Beaver, largely because skilled QA employees are tough to find.

Continuing to invest in the Indian outsourcing relationship on an ongoing basis in order to catch mistakes and improve processes is key. As it is, Wood is automating many of the new processes as well as the metrics to monitor them using software that captures and analyzes data such as cycle times and defects. "It's one thing to have good processes in place, but if you don't have another process to constantly monitor and improve those processes, they will be out of date in a month," Wood says.

Even with the maturity of the Indian market, understanding the continuing high cost of ongoing management is important. "It costs a lot to keep a relationship alive and functioning properly, and that's the biggest challenge CIOs face right now," Davison says. "You do have to expect to pay some money going forward, usually 5 percent to 7 percent, just to keep it functional."

Think Global, Act Global

Wood adds that investing in the process of Indian outsourcing "will make it that much easier to implement this model around the world." And that's one of the goals at Otis—to get more of the company's locations in 200 countries and territories worldwide to benefit from Indian outsourcing. Doucette also hopes to use the initial offshore work done at Otis and Pratt & Whitney to get its other subsidiaries to India where appropriate.

UTC and its subsidiaries are exploring the possibility of sending other work to India, including call center operations and nonstrategic engineering work. After all, the only way to increase the company's Indian savings—barring a highly unlikely drop in labor prices there—is to send more work there. Check back in a few years. They'll probably have some stories to tell.

In the meantime, Beaver has some advice for other would-be outsourcers to India: "If you're not already doing it, find a project and just get started. It's inevitable." CIO

Senior Writer Stephanie Overby can be reached at *soverby@cio.com*.

[redacted]

has to be done, or if manpower loading will be inconsistent or hard to project, an ODC is a bad idea. And you'll pay a price. "If you overestimate the amount of work and don't end up utilizing all that manpower, you're going to incur certain costs," McCaffrey says. "The vendor may work with you, but there will wind up being delays as they have to shift people around."

It's not a cheap proposition in terms of setup costs either. Even though Otis had an existing relationship with Wipro (working on individual projects), the company had to spend $70,000 to set up the technical infrastructure offshore (such as the development environment, required development software and applications, and telecommunications) and another $350,000 on knowledge transfer, which required 10 members of the offshore team to be onsite for four months.

It took a year to recoup those costs, but David Wood, Otis's director of systems development, says it was worth every penny for the efficiency, cost-effectiveness and productivity gains. "For us, it's just a better way to do things," Wood says. –S.O.

Inner ear fluid shifts to maintain balance.

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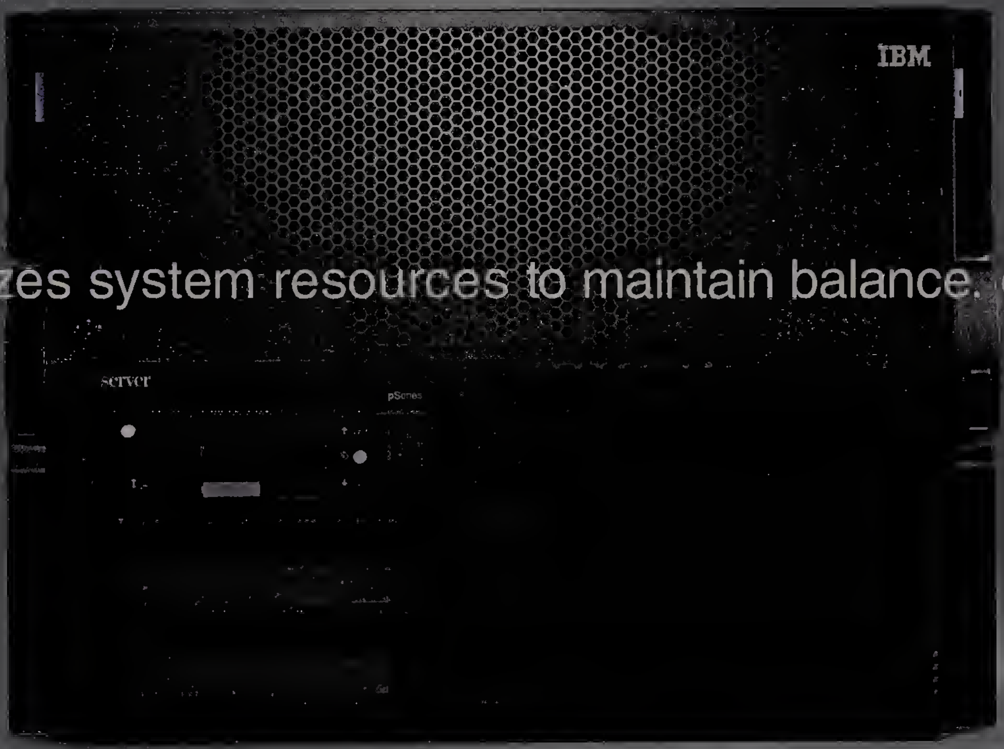

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Ed Carubis, CIO of the New York City Health Department, has begun collecting electronic data from the city's emergency rooms in an effort to spot a disease outbreak.

IMMUNE SYSTEMS

Health officials are working toward a sophisticated IT network that could detect the early warning signs of bioterrorism, but formidable obstacles remain

BY SARAH D. SCALET

Fever. Nausea. Vomiting. Diarrhea.

At first, bioterrorism—whether it's inhalation anthrax, smallpox, pneumonic plague or something else entirely—will probably feel like the flu. You'll be miserable, but you probably won't be alarmed. You'll go to your local drugstore, clinic, maybe an emergency room. Doctors in one place or another might notice a small uptick in flu-like symptoms. But no one will see the pattern. Until the dying starts.

Unless, of course, a sophisticated IT network could transmit and integrate all that data in real-time so that health officials could see what was happening across hundreds, if not thousands, of facilities. And that's just what legions of technologists and clinicians in public health departments, hospitals, laboratories and pharmacies are trying to develop right now.

"The systems are being defined and created as we speak," says Rosemary Nelson, chairman of National Preparedness and Response, a new bioterrorism task force created by the Healthcare Information Management and Systems Society (HIMSS). If such a network existed, health officials could sound the alarm in that precariously short window of time when the spread of the disease could be stopped.

This kind of system could be IT's greatest success, saving lives as well as money. Even without a bioterror attack, a surveillance system would be useful in detecting the early stages of any disease, such as the recent outbreak of the mysterious ailment called SARS, or severe acute respiratory syndrome.

Such a system could also help lay the groundwork for a long-desired system of standardized electronic medical records, which would significantly reduce errors in patient care and save substantial sums of time and money.

But if the pieces don't come together—or if they do but in the process erode the concept of patient confidentiality—then that could also be IT's biggest failure.

"IT has so much potential use in bioterrorism and health care, but the word is *potential*," says Dr. Eduardo Ortiz, a senior fellow with the

Reader ROI

- Why IT is so crucial to bioterrorism response and detection
- Why the biggest barrier to disease surveillance is at the local level
- How new detection systems could lay the groundwork for electronic medical records

PHOTO BY STEVEN VOTE

Agency for Health Care Research and Quality at the U.S. Department of Health and Human Services, which last August released a 354-page report about how IT could be used for bioterrorism preparedness and response. "We're not there yet; we're not even close."

Since the anthrax attacks in Connecticut, Florida, New York and Washington, D.C., definite progress has been made in creating an effective early warning system for bioterrorism. But wildly disparate computer systems, disconnected and often overlapping projects, and a lack of industry standards still stand in the way of creating the kind of network that can save lives.

A computerized nationwide network that could detect the early signs of a bioterror attack or disease outbreak could be IT's greatest success, or its biggest failure—if patient confidentiality is compromised.

The Paper Chase

In late January, HHS Secretary Tommy Thompson unveiled a $3.5 million command center in Washington, D.C. Seeking to reassure a public nervous about biological and chemical attacks, Thompson explained that this new command post would let him coordinate the response to a bioterrorist attack and bring together everyone from the CIA to the Centers for Disease Control and Prevention, which is part of HHS. As CNN cameras filmed a wall of video screens 24 feet wide and 7 feet tall, correspondent Wolf Blitzer told viewers that they were witnessing "how your life could be saved."

It was all window dressing. In many parts of the country, the primary mechanism for detecting bioterrorism—or any epidemic—is still the little stacks of cards that doctors are required to fill out with the patient's name, address and diagnosis, and submit to local health departments when they come across a disease that poses a significant health risk.

The diseases that must by law be reported vary from state to state: West Nile in New York; the hantavirus in New Mexico; most sexually transmitted diseases, everywhere. The root philosophy is that sometimes, doctor-patient confidentiality must give way to the risk to public health. (The notable exception to that rule is when a patient has AIDS, or is HIV-positive.)

On a local level, health officials use those reports to track treatment, notify others who may have been infected or quarantine an individual if necessary. On a broader level, epidemiologists look for disease patterns across the city, county, state or nation, and alert health-care practitioners and the CDC to anything unusual.

Some local health departments have started allowing clinicians to submit this information electronically, but not many do. Some local health departments still worry about upgrading their dial-up Internet connections to broadband.

For doctors, the reporting process is so labor intensive that observers put the compliance rate at less than 20 percent. That means that four times out of five, doctors never even bother to fill out a report. Fortunately, the laboratories where they send their tests tend to be more automated and therefore more likely to file that information electronically with the public health department. But no one believes that public health departments have anything like a full window into what's going on—regardless of the bank of video screens that adorn Thompson's command center.

"In retail America, they long ago made the entire supply chain of data electronic from cradle to grave," says CDC CIO James D. Seligman. "The chairman of Wal-Mart can find out how many widgets got sold an hour and a half ago anywhere in America. That's where we're trying to get with health data, to enable that electronic passage of information from the point of encounter, when a patient sees a health-care professional, and then pass all that data on electronically to the appropriate jurisdictions."

The health-care system is a long way away from that, says Jim Klein, a vice president and research director for Gartner. Even in areas where local health departments do accept information electronically, he estimates that only about 5 percent of hospitals have fully automated medical records. And if patient information is entered electronically at some point, there's often no consistency as to whether, say, the red blood cell count is keyed in as RBC or RB.

This lack of automation and standardization means that the disease reporting process is not only spotty but also slow. A doctor's office might wait until the end of the month to mail its stack of forms to the local health department. From there, the forms could take another month to be processed, analyzed and sent on.

Needless to say, that's just not fast enough for bioterrorist incidents, which doctors say they must respond to in hours, not weeks. Anthrax, for instance, should be treated in the first couple days after exposure. By day six, when a victim is sick enough to go to the emergency room, she might be too sick to be saved.

"Epidemiology is good and gets you to disease recognition, but unfortunately [the recognition comes] a month or two after the information is worth anything," says Dr. Michael Allswede, an emergency room physician and clinical associate professor at the University of Pittsburgh School of Medicine, who was also a U.S. Army medical company commander in Desert Storm.

It gets worse. Even if all the information available about disease diagnoses *were* collected and analyzed in real-time, that still wouldn't be enough to short-circuit a biological attack. That's because the information we possess under current law and practice is insufficient. Doctors have no reason or obligation to report many of the early warning signs of bioterrorism, the flu-like symptoms that could be public health officials' first hint that something has gone wrong. In fact, the Health Insurance Portability and Accountability Act (HIPAA) prevents doctors from sharing any kind of personally identifiable patient information with a third party, except in cases when the public health departments need to know about a legally reportable disease. In other words, a doctor is legally obligated to notify public health that a certain patient has anthrax, but legally forbidden from notifying public health that a specific patient has the *symptoms* of anthrax.

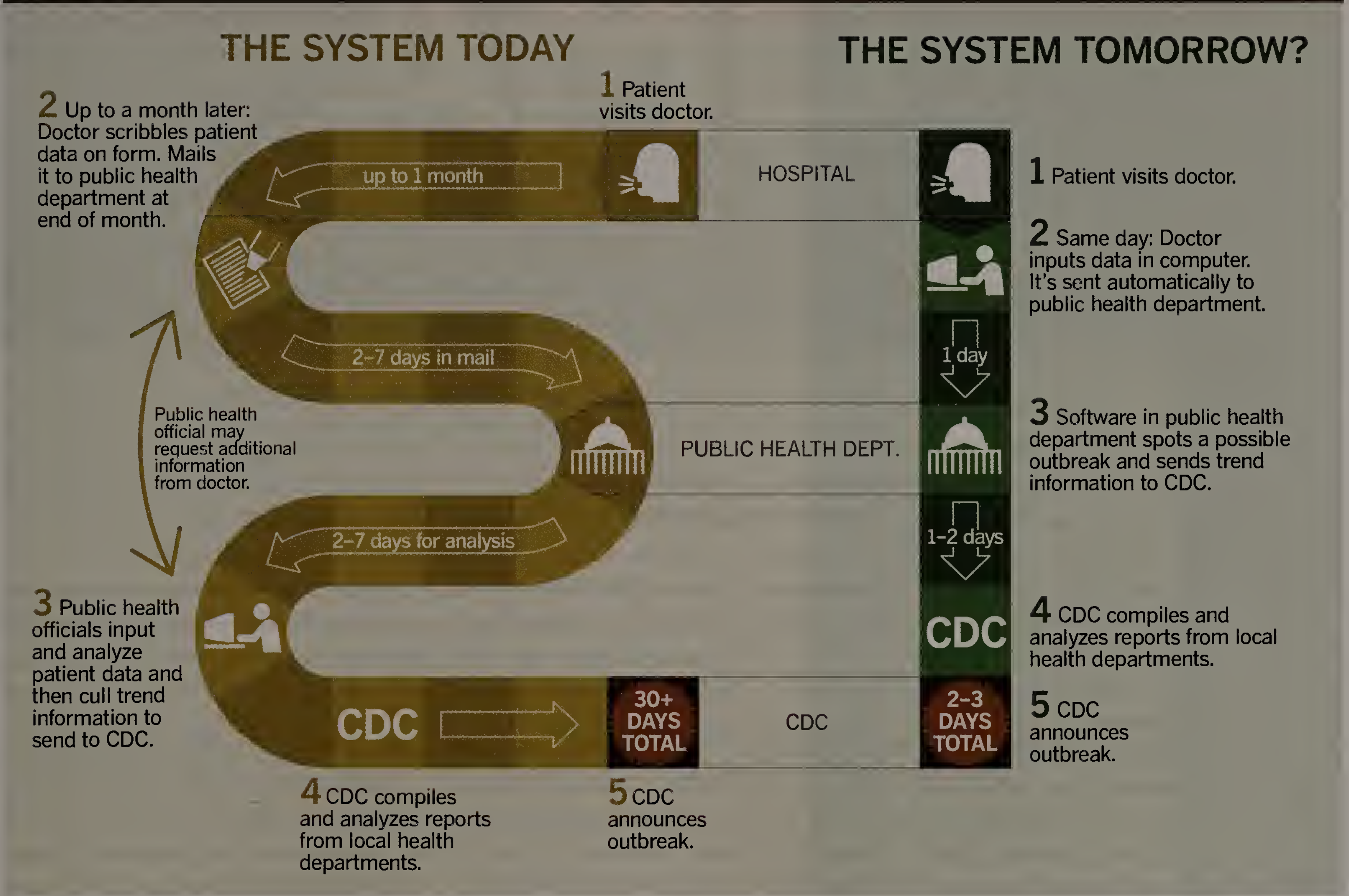
Nevertheless, a few local health departments are starting to gather symptom information that could give early warning about the outbreak of a disease. But this "syndromic surveillance," as it's known, is being held back not just by technological challenges but by political ones, as health-care providers grapple with the line between trend information—perhaps including a patient's age, gender and ZIP code along with his symptoms—and the personally identifiable information protected by the HIPAA legislation.

Tracking Symptoms in New York

New York City has stopped waiting for doctors to fill out those little cards. Instead, the city is working on what it hopes will one day be a model of how to identify the outbreak of a disease in its earliest stages. More than two years ago, the New York City Department of Health and Mental Hygiene started gathering 911 call data for cases involving sickness and respiratory distress. Then, shortly after Sept. 11, the department also began collecting from emergency rooms what's known as the "chief complaint" of incoming patients, such as fever, nausea or a persistent cough. This is the most likely

Outbreak

Today, it might take weeks or months for the CDC to gather sufficient information to spot a bioterrorist attack. With a sophisticated IT network, it would take just days.


THE SYSTEM TODAY
THE SYSTEM TOMORROW?
1 Patient visits doctor.
2 Up to a month later: Doctor scribbles patient data on form. Mails it to public health department at end of month.
up to 1 month
2-7 days in mail
Public health official may request additional information from doctor.
2-7 days for analysis
3 Public health officials input and analyze patient data and then cull trend information to send to CDC.
CDC
30+ DAYS TOTAL
4 CDC compiles and analyzes reports from local health departments.
5 CDC announces outbreak.
HOSPITAL
PUBLIC HEALTH DEPT.
CDC
1 Patient visits doctor.
2 Same day: Doctor inputs data in computer. It's sent automatically to public health department.
1 day
3 Software in public health department spots a possible outbreak and sends trend information to CDC.
1-2 days
CDC
2-3 DAYS TOTAL
4 CDC compiles and analyzes reports from local health departments.
5 CDC announces outbreak.

James Seligman, the CIO of the CDC, would like to see the health-care industry be able to transmit and analyze electronic data in real-time, much the way Wal-Mart knows how many items it sells at each of its stores each day.

health information to be entered into a computer because even if patient case files are not automated, insurance and admittance systems usually are. That information also includes a patient's age, gender and ZIP code, but not his name, ethnicity or other personal data.

All the information comes in via secure FTP once or twice a day, sometimes just in ASCII format, with about 40 of the city's 90 hospitals participating so far. "We said, 'Give us whatever you have, and we'll put it in a common form for analysis,'" says Ed Carubis, CIO of the New York City Health Department. "We didn't force them to use a certain data standard or make them jump through hoops because what we really wanted was participation."

Using that information, public health officials can now identify the start of flu season two weeks before the trend shows up in laboratory results, allowing them to get a jump on awareness campaigns. The department has also started gathering information about certain kinds of prescription and over-the-counter drug sales (from at least one major pharmacy chain) and absentee rates (from a few major employers in the city).

Will the city start tracking sales of orange juice and Kleenex next? Carubis can't be sure because the health department is still trying to figure out how, exactly, to extract meaning from pharmacy sales and absentee rates. (What red flag goes up when Maalox is on sale?) He also won't say which pharmacy or employers are sharing numbers with the city. That probably has something to do with the fact that this kind of system, frankly, gives some people the creeps. Privacy advocates wonder how useful this kind of information can really be and what further invasions of privacy it might lead to.

For one researcher, New York's fledgling surveillance project is just "No. 47" on a spreadsheet of projects. John McLamb has been trying to pull together a comprehensive list of all the national, state and local bioterrorism initiatives currently being attempted by health departments, universities, professional associations and even the Department of Defense. McLamb, who is director of informatics for emergency medicine at the University of North Carolina at Chapel Hill, is doing the work for HIMSS's group on bioterrorism not at the bequest of any federal agency.

Every line on his spreadsheet has a story. In Kansas City, for instance, the health-care vendor Cerner is working with local hospitals to automatically send certain computerized lab reports to health departments in Kansas and Missouri. Only health departments have the key to unencrypt identifying information, but physicians at any of the 23 participating hospitals can view the region's trend data for research purposes. "Before, we were living in our own little pockets of data," says John Wade, vice president and CIO of Saint Luke's Health System, one of the participating organizations.

In the Minneapolis area, after much wrangling over HIPAA, the nonprofit health-care organization Health Partners started sending information about flu-like illnesses to researchers at the Harvard Medical School, as part of a $1.2 million early warning system funded by the CDC. Other participants include Kaiser Permanente and Optum, which runs a national 24-hour health hot line. "I've spent as much time working on the privacy concerns as everything else combined," says Dr. James Nordin, a clinical research investigator at Health Partners. "What we have done is to be very limited about the information that goes out to the Minnesota Department of Health and even more limited about the information that we send to the data center at Boston."

And in New Mexico, researchers at Sandia National Labs have developed a system called the Rapid Syndromic Validation Project—the only one of the bunch that, instead of fishing information out of existing data streams, requires health-care providers to actually log on to a secure website and type in information about a patient's symptoms in return for trend and treatment information. "We tell the doctor that we only want

PHOTO BY KEN HAWKINS

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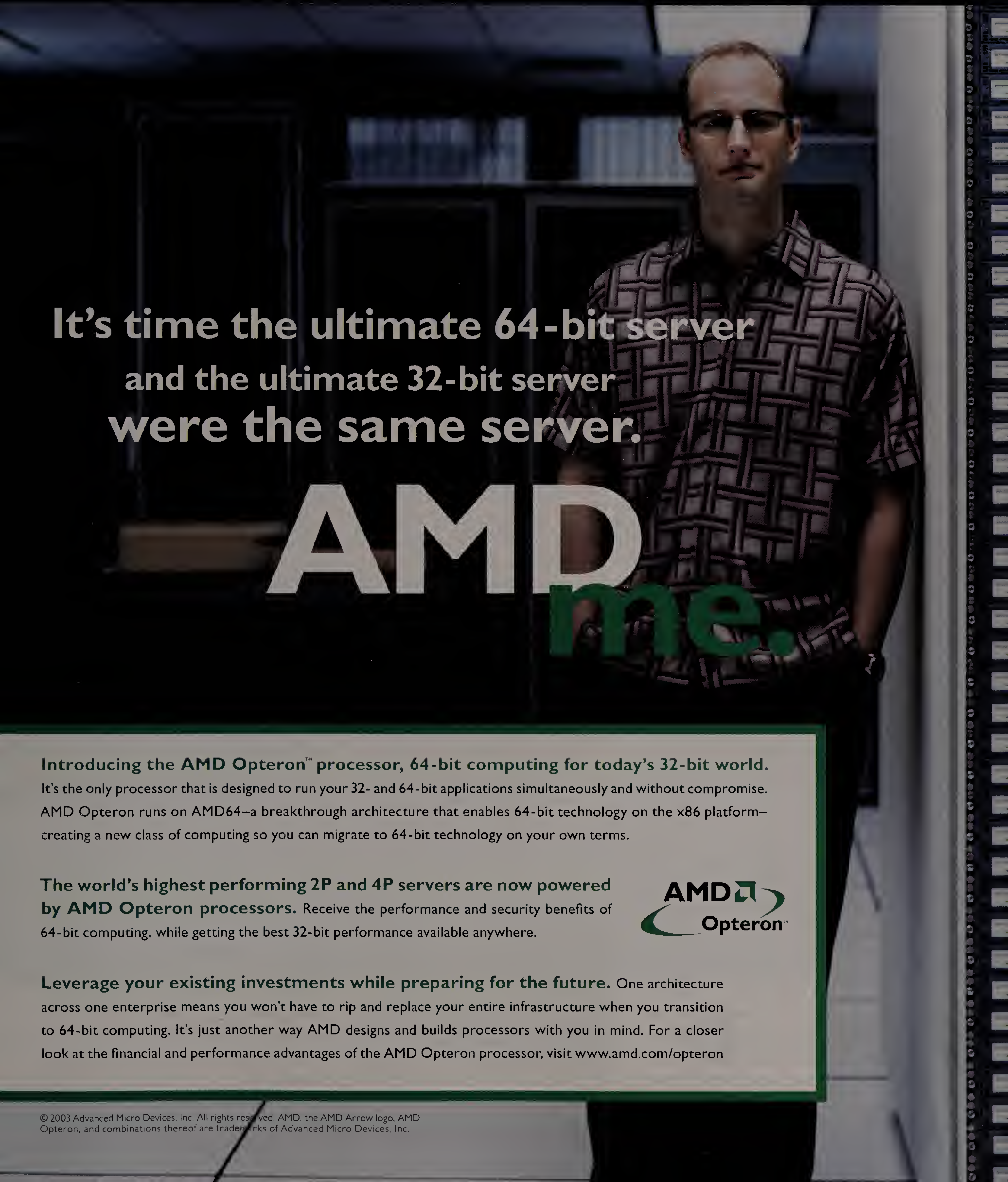
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sick people, and we give the doctor something back that's relevant to the patient they're treating not in 10 days but in 10 seconds," says Alan Zelicoff, the senior scientist who developed the system and hopes it will eventually be used across the country.

In those programs and dozens of similar ones in the works, there's more than a little braggadocio involved. "This one's the best," Zelicoff says, by way of greeting a *CIO* reporter who called for an interview.

And there's more than a little overlap too. "I see a lot of efforts out there that are redundant," McLamb says. "If people who are doing the same thing would get together, they wouldn't have to reinvent the wheel."

A $918 Million Pie

With so many projects being developed by so many entities, the ultimate success of any national bioterror surveillance system will depend on one thing: whether those systems can ever talk to each other. And if there's one thing that everyone involved agrees on, it's the need for standards.

The federal government has taken one big step in that regard. In March, the U.S. Department of Health and Human Services along with the departments of Defense and Veterans Affairs jointly released the first set of uniform health information standards for exchanging clinical data electronically across the federal government. When developing new systems, all federal agencies are now obligated, among other things, to use the Health Level 7 messaging format—a set of drug-ordering guidelines already adopted under HIPAA—and a group of codes for laboratory results.

Ultimately, though, public health is a very local activity. It's you, your doctor, your exam room, your lab test results. When it comes to reaching the state and local health departments that interact with all the players, the federal government has a lot less control than one might expect. "Typically, if there's an outbreak of a disease at the local or state level, they will handle it locally or invite the CDC in on an as-needed basis," the CDC's Seligman says. "We offer our assistance, but ultimately it's their call."

The one place where the federal government does have power to persuade is with its pocketbook. And that's where the CDC's National Electronic Disease Surveillance System (NEDSS) comes in. This system lays out a sort of meta-standard for both health-care information and IT standards. All state health-department systems must be NEDSS-compatible—at least they do if they want a piece of the $918 million in bioterrorism grants that the CDC is handing out this year.

Truly effective public health surveillance must await the resolution of a national debate on how the nation's need to know will be balanced with the individual's right to privacy.

This pocketbook persuasion could pave the way for electronic medical records in the health-care industry. "These standards that make national disease surveillance work are the same standards that we'll need if we're going to move forward to a day when you can ask a doctor to send your medical records electronically to a new doctor," Gartner's Klein says. But the work also highlights just how difficult the journey will be.

Pennsylvania is one of the few states that have already adopted the system. There, the state Department of Health built a NEDSS-compliant application that allows doctors to go to a secure website to report a disease. As soon as a doctor hits "save," the information is available to public health investigators.

Development was no small task, says Mary Benner, CIO and IT director for the department. The state had to consolidate some 6,000 data fields from 100 forms to 600 actual data elements in the database, and also work out problems with providers on antiquated operating systems trying to use the digital certificates that enable secure, encrypted communications.

cio.com A doctor is legally obligated to notify his public health department that a patient has anthrax but legally forbidden from reporting that a specific patient has the *symptoms* of anthrax. What's HIPAA got to do with it? Everything. Keep up with privacy issues in our **SECURITY AND PRIVACY RESEARCH CENTER** at *www.cio.com/security*.

Now, the biggest challenge is getting doctors to register. Since July 1, when the system went live, the department has received 57,000 cases of reportable diseases electronically. It also gets several hundred reports a week in paper form. "Some [doctors] are very enthusiastic, and others don't have a computer in their office and don't want one," Benner says.

With that kind of reluctance and the ongoing challenge of getting the industry to adopt a set of standards, a national bioterrorism surveillance system seems far off, indeed. Right now, truly effective public health surveillance must await the resolution of a national debate on how homeland security will play out in a country that has always prided itself on its freedoms. And that debate will increasingly depend on how technology and CIOs can balance the public need to know with the individual's right to privacy.

"We have to decide as a nation how much security and privacy we need when those two things are in a trading relationship," says Pittsburgh School of Medicine's Allswede. "What we're doing in terms of information technology, and where it has to progress, is a microcosm of that larger sociological change." CIO

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No Tolerance For High Maintenance

Fed up with rising costs of software maintenance, CIOs are finding they have the power to negotiate better terms up front and get more bang for their buck

BY BEN WORTHEN

If there's one thing that CIOs agree on, it's maintenance fees. They're a great value for the money; the upgrades that the fees entitle you to provide the right solution at the right time. In fact, most CIOs write that yearly check with a smile.

And pigs fly. CIOs put maintenance fees in the same category as death and taxes—dreaded yet unavoidable. Licensing a piece of software buys you only the right to use it; if your organization wants support, upgrades and patches, vendors demand an additional annual fee in the ballpark of 17 percent to 20 percent of the up-front cost. A company that purchased a million-dollar ERP package, for example, could pay $200,000 for maintenance every year. Well, that's $200,000 for the first year of the contract, really, since rates often increase as the contract wears on. "We always have the 3 percent updraft, kind of a cost-of-living increase on all maintenance fees," said Mark Ain, CEO of Kronos, in a conference call discussing his company's fourth-quarter results for 2002. Ain was explaining to financial analysts that the HR systems manufacturer's revenue stream would grow every year because Kronos's customers had no choice but to pay those fees.

Reader ROI

- ▸ How to negotiate the best terms when securing a software maintenance contract
- ▸ What to do midcontract when a deal is not working
- ▸ When to let a maintenance contract lapse

ILLUSTRATIONS BY ZOHAR LAZAR

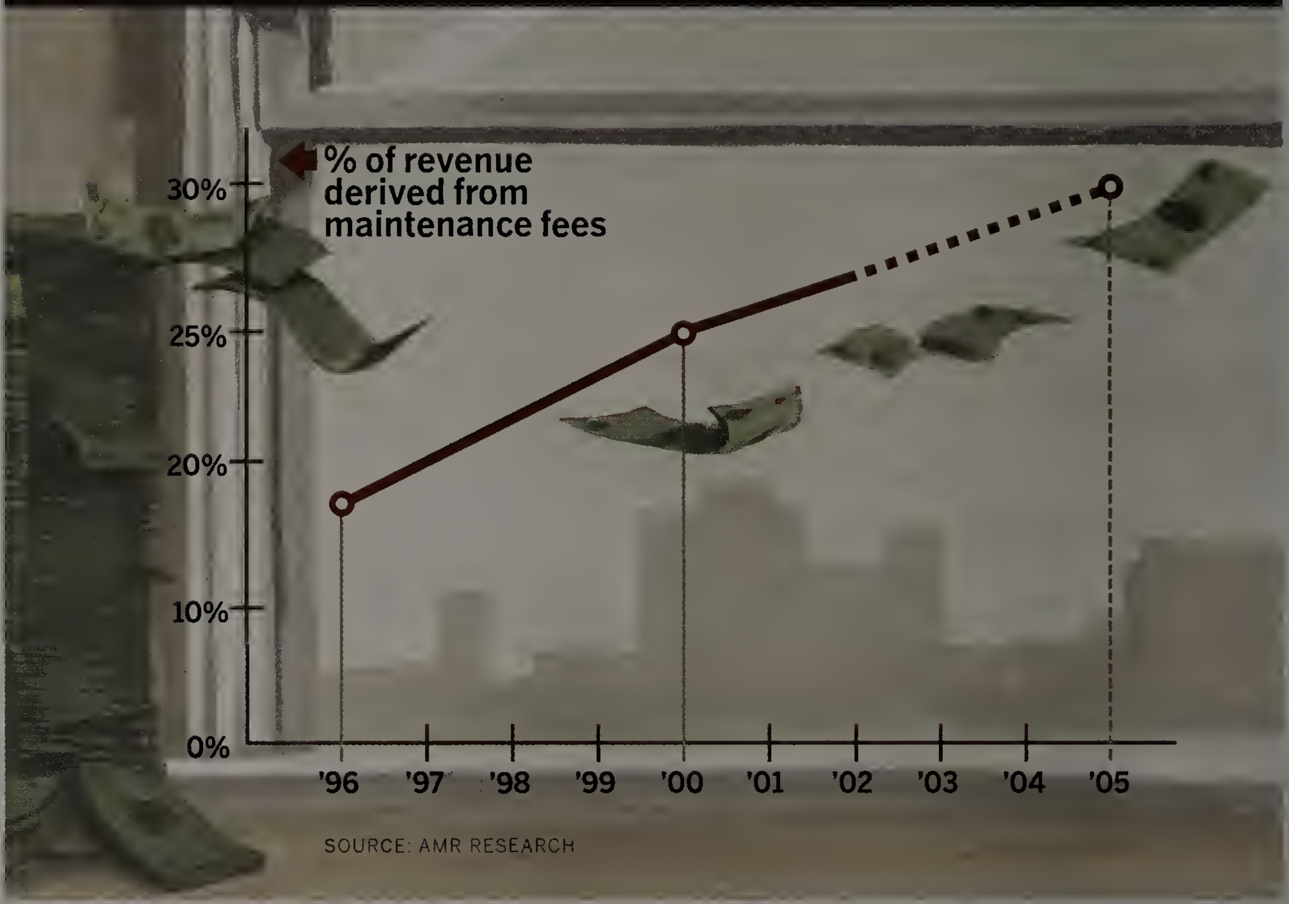
It's precisely that attitude that makes CIOs feel they're being taken advantage of. "I don't want to go to an extreme and call it extortion," says Doron Cohen, senior vice president and CIO of Canada Life Financial, searching for the right word to express his frustration. But he does, after an extra minute of stewing hardens his conviction. "I'm looking at extortion money, and I'm not happy about it," he says.

"Very often the focus of the people buying is more on 'How much do I have to buy, and What kind of discount can I get?'" says Scott Rosenberg, whose Leonia, N.J.-based company, Miro Consulting, specializes in helping companies negotiate contracts with Oracle. "There's less focus on 'Now that we have gotten married, what is that marriage going to be like?'"

Until now. The frustration over maintenance fees has taught CIOs to focus on the terms that will shape the vendor-customer relationship before entering into a deal. While in the past those fees have been nonnegotiable, CIOs' recent insistence on working out favorable terms—combined with the slumping economy—has changed that. They are negotiating better terms up front, renegotiating midcontract and, in some cases, running software without maintenance.

Your Money Out the Window

ERP vendors are increasingly relying on maintenance fees for revenue



SOURCE: AMR RESEARCH

The Problems with Vendors

The problems start with the term *maintenance fee*, which implies that it covers help desk calls, tech support and other such expenses. The truth, however, is that most of the benefits to a user company are indirect. Twenty percent to 50 percent of the maintenance fees collected by the top 10 major ERP vendors actually go toward the development of future releases, according to a 2002 AMR Research survey of those companies. In this regard, "maintenance" is a misnomer, since the fees represent a steady source of income for software vendors. The annual payment helps them make projections and balance their budgets, both bottom-line boons. Furthermore, annual fees keep the licensing cost artificially low; if vendors charged for support and R&D costs up front, software would be prohibitive for all but the wealthiest of organizations.

With an eye toward increasing revenue and lowering up-front payments in order to spur sales, vendors have been raising maintenance fees every year. In 1996, maintenance fees on enterprise software accounted for about 18 percent of ERP vendors' annual revenue, reports AMR. By 2000, that percentage jumped to 25 percent. And AMR predicts still another increase by 2005, to 30 percent (see "Your Money Out the Window," above).

peer resources

Need to get the upper hand in dealing with vendors? Check out the series of articles called **SPIN CYCLE** on *CIO*'s online sister publication Darwinmag . Find the link on the homepage at *www.darwinmag.com*.

Vendors insist that maintenance is a crucial part of what CIOs are buying. "As the pace of change increases, so does the cost to keep up," says Claus Heinrich, a member of SAP's executive board. Maintenance fees allow vendors to make investments and upgrades that individual companies could never afford or have the time to do themselves. For example, Heinrich has a team of 430 (350 full-time) developers working on SAP's human resources module. Ultimately, Heinrich says, the cost to individual companies to develop similar updates on their own would be much higher than that of maintenance fees. Vague, yet risky scenarios like that are one of the reasons CIOs rarely risk finding out how much it would cost to try it on their own.

In addition, after a system has been in place for a couple of years, most CIOs rarely use technical support. Then the primary return on investment is updates. "Yet [vendors] will not give you any clear indication of what the product is going to look like over the next five years, and [they] won't tell you what will be in there," says Jerry Hale, vice president and CIO of Eastman Chemical. That updated product may turn out to be wrong for your business. Or worse, says Hale, "we get the feeling that the majority of the development fees are going toward

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products that we have to license for again."

All of this may have been fine in 1999 and 2000 when you could simply pick the money off the tree in headquarters' new arboretum. But today, many of the maintenance contracts signed in the good old days hang around CIOs' necks like a noose.

Negotiate with Confidence

Most CIOs will admit they aren't financial wizards; their job is to use technology to drive the business forward, not figure out how much to pay for it. With this in mind, maintenance is a trap waiting to happen. Companies invest considerable energy negotiating licensing fees and implementation costs, and are then too exhausted to argue over maintenance. As a result they relent to things they should not. "These are things that [vendors] do that are standard and legal," says AMR senior research analyst Monica Barron. But if you are aware of the vendor perspective, you can avoid some of the common pitfalls that can swallow you during contract negotiations.

When entering a negotiation, simply be prepared to ask for things. In fact, most of the tips we've gathered from various CIOs hail from the you-never-know-til-you-ask-for-it school. For starters, the maintenance percentage should apply to the negotiated rate of the software—not the retail rate. Vendors may try to peg the rate as a percentage of the current list price. Most of the CIOs interviewed for this article, however, say they are paying a percentage of the discounted rate, which can be substantially lower—40 percent in some cases.

Second, make sure to lock in the rate for the length of the contract. Many times vendors will agree to a rate for the first or second year, only to shoot it up thereafter. To ensure this doesn't happen to Dow Corning, CIO Abbe Mulders insists on the same fixed rate for three to five years. Plus she includes language in her contract that limits how much the fee can increase. AMR's Barron suggests linking the increase to a standard economic indicator like the consumer price index or the prime interest rate.

Perhaps the best way for a CIO to set up a good maintenance contract is to admit that he is not a professional negotiator and hire someone who is. "The software companies make the contracts so complicated specifically to put you at a disadvantage," says Luc Lafontan, director of information security at publishing company Primedia. "[They] aren't going to guide you through it." Lafontan hired Miro Consulting to negotiate its contract with Oracle. Some of the tricks the consultancy employed include combining used and unused software licenses to get the best rate and waiting until the end of the vendor's quarter—when the vendor is anxious to close any deal and scoop up every dollar it can—to improve Primedia's negotiating leverage.

Negotiations Done Right

Advice from those who've gotten what they wanted out of a maintenance contract

- Be patient when entering into a negotiation, and be prepared to walk away if an agreement cannot be reached.
- Arrive at the negotiation with an open mind and a willingness to ask for what you want.
- Make sure the maintenance percentage applies to the negotiated rate of the software, not the retail rate.
- Insist on a fixed rate for maintenance, or limit how much the fee can increase throughout the length of the contract.
- Wait to negotiate until the end of the vendor's quarter, when it is anxious to scoop up every dollar it can. *–B.W.*

Lastly, the most important element CIOs can bring to a negotiation is patience. Before choosing a vendor—or even during a long negotiation—a CIO always has the option of walking away and hiring another vendor that will agree to his terms. Vendors may resist many of the requests initially, says D. Beatty D'Alessandro, but you can wait them out. In 2001, D'Alessandro, vice president and CIO for electrical products maker Graybar Electric, spent more than three months in contract negotiations before agreeing to terms with SAP. He says he was willing to wait as long as it took to get satisfactory terms. That experience, he says, reinforced his guiding assumption: Everything is negotiable.

Throw Your Weight Around

Once a company has spent millions of dollars on licensing and implementation with a particular vendor, it's hooked. And vendors know it. But that doesn't mean a CIO has no options when it comes time to renegotiate. Primedia, for example, conducts monthly software audits and quarterly reviews with business units to find out how many licenses it has for any given piece of software and how many it actually needs—oftentimes revealing different numbers. This information lets Lafontan determine just how much maintenance he requires.

Another strategy is to influence the design of the next upgrade, an effective tactic especially midcontract. Mulders says Dow Corning works closely with SAP to let it know where Dow is headed. "That gives Dow the functionality we need in a general-release product so that we don't have to pay additional [customization fees]," she says.

Certainly large companies such as Dow Corning have more leverage when it comes to influencing the shape of future versions. But small companies can have an influence as well through user groups and vendor conferences. For years, members of the Oracle Application User Group requested that Oracle reduce or waive the $100 fee the software maker charged for each technical reference manual. In 2000, the vendor started providing the manuals to licensed users through the Internet free of charge.

Finally, and this may seem obvious, use the support you're paying for. "You need to push every problem that you have out to this group," says Lafontan.

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Know When to Cut the Cord

When all else fails, CIOs can let a maintenance contract expire and support the system on their own. Running major software without maintenance happens, says Canada Life's Cohen. "This is the same thing as when it is no longer supported," he says. Cohen says the Toronto-based insurer won't be intimidated into paying maintenance if it doesn't make business sense. In fact, last year he decided not to upgrade a key industry-specific package. The current version is 6.3, and Cohen runs version 4.6, which the vendor no longer supports. "We have modified it to the point where you would not recognize it," he says, meaning that upgrading wouldn't be a simple task. In fact, Cohen determined that customizing the upgraded software would cost between $2.7 million and $3.4 million—a price tag that greatly outweighs the potential benefits of the new version.

> **"The software companies make the contracts so complicated specifically to put you at a disadvantage. They aren't going to guide you through it."**
>
> –LUC LAFONTAN, DIRECTOR OF INFORMATION SECURITY, PRIMEDIA

AMR's Barron agrees that sometimes it doesn't make sense to keep paying maintenance, such as when a company has no plans to upgrade or if a vendor doesn't plan to add new features. A CIO may choose to let a contract lapse if he never uses the vendor's help desk or an audit shows that an application doesn't have enough users.

CIOs are often superstitious when it comes to stopping maintenance. "The day you take the insurance off your house is the day it burns down," says Lafontan. Last summer he considered letting a maintenance contract on one of his company's systems expire. But Lafontan learned the vendor would tack on an additional percentage of the original contract to future maintenance if he later chose to resume the service, which was enough to dissuade him from stopping the payments.

Cecil Smith, CIO of Duke Energy, advises CIOs to determine who owns the source code before deciding whether or not to stop paying maintenance on an application. If you own the source code, you'll have an easier time getting to the core of the software when a problem pops up. "Typically, this is part of your [initial] negotiation," he says. "Many times what they are doing is selling you the rights to use it for a one-time charge, with the idea that a lot of revenue will be ongoing maintenance fees." If the vendor owns the source code, organizations will have a more difficult time solving a problem.

Smith says that although his company does maintain a large amount of its applications, self-support is not the first option for most packaged applications. "Many companies have streamlined down to where they have little staff, which is why they buy packaged software in the first place." These companies should think twice before stopping maintenance, he says. Likewise, most CIOs warn that stopping maintenance on HR systems is not a good idea, since they often include tax updates that would be too costly to do on your own.

Eastman's Hale dreams of a world where every dollar paid for maintenance returns a dollar of value. "There needs to be some kind of grassroots effort where companies start pushing back and insisting that the software vendors unbundle maintenance and support and give us more visibility into how those dollars are being spent," he says. Short of a great uprising, CIOs are resigned to paying the fees. But they are more careful, negotiating favorable terms up front and getting as much of their money's worth as possible. And when they do not, they aren't afraid to call a vendor's bluff and run unsupported.

Staff Writer Ben Worthen can be reached at *bworthen@cio.com*.

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Public-Sector Governance

dire states

Across the nation, states face the worst budget crisis since World War II. For state CIOs, that means big spending cuts, reviews of business practices—and bracing for more bad news next year. Here's how four are coping.

BY MERIDITH LEVINSON

Reader ROI

- How state CIOs deal with budget cuts in the recession
- Governance strategies in the public sector

WHEN THE PRIVATE SECTOR'S engines of growth began to sputter in 2000, and the traders, speculators, investors and entrepreneurs began downshifting their spending, the public sector never skipped a beat. States, which cycle behind the private sector when it comes to sensing economic changes, continued to shovel tax revenue into their coffers and reap the benefits of the boom years for a good year and a half after the markets tanked.

But all that has changed. States are now doing the same budget cuts, hiring freezes and layoffs that the private sector initiated nearly three years ago. In the aftermath of Sept. 11, in the wake of war with Iraq, and with the prospect of the Bush administration's tax proposals producing a $1.8 trillion federal deficit during the next five years (according to the Congressional Budget Office), states are confronting their worst fiscal crisis in half a century. Indeed, the National Conference of State Legislatures reports that states are facing at a minimum a $68.5 billion budget shortfall for FY04.

James Kane, president and CEO of Federal Sources, a public-sector IT market research company, tracks the impact of these shortfalls on IT. When his company researched 42 state budgets last year, only six showed a deficit greater than 10 percent. This year, of the 37 state budgets his company analyzed, nearly half (18) showed deficits greater than 10 percent. Of the 520 state

BUDGET PAIN ACROSS THE LAND

CALIFORNIA	**TEXAS**	**MICHIGAN**	**FLORIDA**
$34.6 billion deficit; no centralized view of IT spending	State facing $9.9 billion deficit; IT cut 12.5% for 2004	$1.7 billion deficit; $35 million cut from IT in 2003, 2004	10% budget cuts mean no new PCs, no network upgrades

technology projects that Federal Sources is tracking, two-thirds are now on hold awaiting funding. If the cash doesn't come through, they could be canceled, says Kane.

"In an economic downturn, the demand for state services actually goes up," says Kentucky CIO Aldona Valicenti, identifying a troubling paradox. "More people file for unemployment. More people file for benefits, which means that our systems experience growth. Keeping the infrastructure running becomes critical." But a lack of funding for maintaining basic IT infrastructure or for scaling systems to meet demand could lead to lower service levels for citizens and agencies. Valicenti's IT budget is taking a 2.6 percent hit this year.

"We're starting to realize more and more how dependent governmental operations have become on information technology," says Gerry Wethington, Missouri's CIO and president of the National Association of State CIOs. "Now you have to begin to really rationalize: What's this particular cut or cost-containment measure going to mean to my infrastructure, and more importantly, to my ability to deliver services to citizens?" For example, he says, if budget cuts result in a CIO having to scale back data center operations from 24/7 to business hours, that means citizens can't access services at their convenience. Wethington adds it could also put their personal safety in jeopardy if a law enforcement officer can't process an inquiry for a wanted person in a timely manner.

Given those cold calculations, prioritizing IT initiatives has become a critical exercise. State CIOs are under great duress to identify places to cut without sacrificing services to citizens, while ensuring their states have a solid IT foundation to support economic stimulus plans and future growth. Most state CIOs have processes for navigating through these difficult decisions about which IT projects and services should be cut and which should receive funding. They're finding ways to separate the luxuries from the necessities, using interagency advisory councils to help identify the most important projects, and they're milking their vendors for better deals. These methodologies help state CIOs pinpoint the critical issues (security and disaster recovery, consolidation and e-government) and thus help prevent the deterioration of critical services on which citizens depend. (To see Iowa's model program for evaluating IT investments, see "R.O.Iowa," Page 99.)

In this story, the CIOs of Texas, Florida, California and Michigan offer a candid look at their strategic decision-making processes during these difficult times. They share their best practices for making tough budgetary choices, for getting the most out of their vendors, and for bringing together disparate and often competing units of their government organizations.

TEXAS

CIO: CAROLYN PURCELL (8 years on the job)

Budget Deficit: $9.9 billion shortfall.

What That Means for IT Budget: 7 percent cut for 2003; projected 12.5 percent cut for 2004. The state spends $2 billion total on IT. The Department of Information Resources has an $80 million budget.

Priorities: Texas Online portal (*www.texasonline.com*), cooperative contracts program, project management office, security, architecture and telecommunications.

Cuts: Administrative expenses such as travel and vacant positions.

Methodology: Managing her project portfolio according to the value each project provides to the state.

The Problem: In his state of the state address last January, Texas Gov. Rick Perry unveiled a spending plan that starts at zero dollars for every agency. "In tough budgetary times, every dollar spent by government must be scrutinized to determine whether it justifies consideration as a priority. We must reject the notion that government must continue to do things just because that's the way we have always done it," Perry said.

The Process: Even though her budget did not go to zero, Purcell, executive director of Texas's Department of Information Resources, still faces substantial reductions. She says deciding what to cut is a matter of zeroing in on the services that her department provides that make "the biggest contribution to the efficiency and effectiveness of state government." Key to her department's mission: providing the state's telecom infrastructure; running the state portal, Texas Online; setting IT standards; and negotiating contracts with vendors.

Improving contract administration is one of Purcell's top priorities. Her department is also concentrating on negotiating contracts to reduce IT costs, and Purcell says, "Sometimes, we just don't do a good job of writing and administering contracts." Likewise, her project management office will continue to receive support because its function is to ensure that projects are completed on time and on budget.

While she doesn't expect the state to make any new investments in IT, initiatives that offer an immediate payback or that can be done at no cost to the budget may move forward. Texas Online is one such example; it pays for itself through the revenue from convenience fees charged to citizens who use it to renew their car registrations or hunting and fishing licenses.

Once Purcell has identified the initiatives that offer the state the most value, she then cuts items and projects that don't contribute as much. For instance, she's cut travel

Texas is making sure vendors deliver on contracts. Florida's budget is in the black, but policy-makers are cutting spending in anticipation of tight times. Michigan is forcing IT contractors to reduce their prices.

because there just isn't money in the budget for conferences, training sessions or meetings with vendors. In addition, she has cut vacant positions and is considering layoffs.

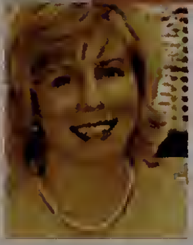
She is also working with vendors that are willing to assume the risk she takes when she invests in a new product. She doesn't pay the vendor until the hardware or software shows a payback. When it does, she pays the vendor out of her savings. For example, in the development of Texas Online, BearingPoint assumed the portal's up-front capital investment. When the state began generating revenue from convenience fees, Purcell paid BearingPoint for its services with that revenue. She says the comptroller's office partnered with a company that provides software to detect Medicaid fraud a few years ago and later paid the provider out of money the state collected on fraud cases the software discovered.

Purcell says this model of vendor partnerships could work in the private sector. "The private sector is even better at partnering than we are," she says. She believes this model is valuable not just because it saves the seller from taking on risk during difficult economic times but also because it focuses the buyer and the vendor on the same goals, which helps make projects run more successfully.

As challenging as these times are, Purcell believes the steps she's taking to make state IT operations work more efficiently will better position them for the future. "It's an opportunity for us to say, 'It's time to consolidate. Let's make investments and get stronger.' After we recover some, and if we play our cards right and do our jobs right now, we'll have a more entrenched position at the executive table," she says.

An Expert's View: Improving contract management for IT projects is a key area for attention in Texas, says Sherri Greenberg. Greenberg is a former lawmaker who served on the Texas House Appropriations Committee and studied information systems issues and now lectures at the University of Texas's Lyndon B. Johnson School of Public Affairs. She says poorly managed contracts can cause state agencies to "hemorrhage money," especially when contracts for new information systems fail to include the cost of staff training. The agency ends up either paying extra to the contract vendor for training services or hires another company to provide the training. "When I was on the Appropriations Committee in the Texas legislature, I personally saw where the failure to write and administer contracts well has cost the state and state agencies a lot of unnecessary money," she says.

FLORIDA



CIO: KIMBERLY BAHRAMI (2 years on the job)

Budget Deficit: No deficit this year.

What That Means for IT Budget: $1.2 billion for IT spending.

Priorities: "Keeping the lights on," consolidation, security, state portal (*www.myflorida.com*), enterprise technology services desk portal.

Cuts: Case management system; document management system; voice and data infrastructure enhancements and replacements, including new PCs, networks, servers.

Methodology: Technology Advisory Team.

The Problem: With critical tourism revenue in decline, Bahrami is working with Gov. Jeb Bush, agency heads and 38 agency CIOs to cut each agency's spending by 10 percent without impairing its operations. Bahrami says her goal is to free up as many IT dollars as possible for critical services, such as domestic security, child welfare, family safety and education. If she can do that without "disrupting any state agency operations," she will count the process a success.

The Process: Agencies submit their requests for IT projects; last fall, 267 such requests were submitted for 2003-2004. The agency CIOs meet, and during the course of one week, review their budget requests and group them into one of three different categories: projects that keep systems humming (highest priority), projects that contribute to enterprise integration, and "luxuries" or enhancements. The CIOs then present their groupings to Bahrami and members of her IT staff.

Bahrami and the agency CIOs know they have to focus on category-one issues. Within that category, they put a higher emphasis on projects that affect multiple agencies, align with state policy goals (such as improving student achievement, reducing violent crime and shrinking the government's size), and have previously received funding (such as Myflorida.com, the information security office and the enterprise technology services desk portal). Last year, they pared the 267 requests down to 38.

Agency CIOs whose budget requests survive that initial review then make their case in a public hearing in front of Bahrami's Technology Advisory Team (which includes Bahrami, the governor's top budget official and chief of staff, and the heads of state revenue, health-care administration, the lottery and law enforcement). The committee then votes on which issues should head to the governor. (Of 38 requests, 26 made it into Bush's budget for 2003-2004.)

Using this process, Bahrami was able to avoid $76 million in costs in 2002. If the budget recommendations win approval this year, it will trim more than $100 million off the budget for 2003-2004. Bahrami says this process allows the state to cut costs without seriously affecting its ability to deliver services.

An Expert's View: Jane E. Fountain, director of the National Center for Digital Government at Harvard's Kennedy School of Government, says Bahrami's approach, though sound, "represents a continuation of a traditional strategy that fails to take advantage of significant savings that might come about through the use of IT-enabled process redesign across programs, agencies and departments."

The typical budget review process, in which each agency justifies its budget before a board, Fountain adds, "simply reinforces an agency-by-agency approach to using IT in government. Single-agency approaches to technologies whose power lies largely in integration cannot achieve powerful results. The major efficiency gains from IT for government lie in the potential to integrate operations and data across agencies, not simply within them."

5 Tips for Tough Times

The state CIOs interviewed for this story use the following methods to evaluate whether an IT initiative should receive funding. Some of them are tried-and-true, others are more novel. You too can add these criteria to your decision-making toolkit for when it comes time to make the tough call.

① Establish a cross-functional team of representatives from different departments, business units or agencies in your organization to help you prioritize.

② Evaluate and consider the value of the project to end users or customers.

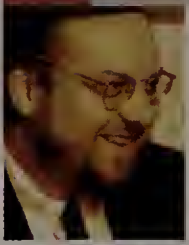
③ Determine whether you can leverage your investment in a technology that you're deliberating funding by scaling it to a larger group of users.

④ Figure out if there are ways you can further reduce the maintenance and support costs for a technology that might otherwise get the ax.

⑤ Identify which of your most important IT projects and initiatives align or diverge with your CEO's strategic plans or governor's policy goals. Keep the ones that are in alignment. Sideline the ones that aren't.

–M.L.

CALIFORNIA



CIO: J. CLARK KELSO (1 year on the job)

Budget Deficit: $34.6 billion shortfall (January 2003 through June 2004).

What That Means for IT Budget: California has no IT budget that's set aside from other state spending after the state dissolved its IT department when a no-bid contract scandal led to former CIO Elias Cortez's ouster in 2002 (see *www.cio.com/printlinks*). The state CIO serves as special adviser on IT to Gov. Gray Davis and focuses exclusively on large, statewide IT issues, such as IT security, data centers and the state's online portal. Each state agency procures IT on its own, but no budget line items are specifically devoted to IT costs.

Priorities: Projects that save money, data center consolidation, e-government via state portal, collaboration of IT efforts with other state agencies.

Cuts: Consultants working on the state's portal (*www.ca.gov*).

Methodology: Top-to-bottom review.

The Problem: Kelso, who also serves as California's interim director of General Services, is in the unenviable position of having to justify IT spending at a time when the state is facing its most dramatic loss of tax revenue since World War II. Kelso's assuming the job after a scandal only made things worse.

One of Kelso's first orders of business upon taking over the CIO post in June 2002 was to decide, in light of funding problems and intense public scrutiny, whether to replace the state's award-winning portal with a more static website or to keep the portal alive until legislators could vote on what they wanted to do with it. Legislators had begun to question whether the state portal was truly beneficial to citizens and state civil servants, and whether it was worth the more than $25 million it was purportedly going to cost to develop and maintain. (Kelso says procurements for the portal done under the previous CIO were so poorly recorded that the state doesn't have a single budget number for the project.)

Kelso decided the controversial project required a complete review—a thoroughness of approach he's applied to IT governance and the project management frameworks he's established for the state as well as the procurement reforms he initiated.

The Process: Instead of pulling the plug on the baggage-laden portal, Kelso initiated a top-to-bottom review of the project

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in six weeks. When he looked at the portal, he saw a system with a variety of functions that appealed to a wide swath of constituents. The Department of Motor Vehicles system was on the portal. The state bar of California had its licensing system on the portal. Citizens could apply for hunting and fishing licenses, real estate licenses, and state park campsite reservations, among other things.

Studying the portal's technical components, he saw that many of its pieces, such as its content management and e-mail alert systems, were readily scalable to allow more agencies to add services. Finally, Kelso looked into the portal's spiraling cost. For this task, he sought perspectives from the departments of Finance and General Services as well as the Business, Transportation and Housing Agency.

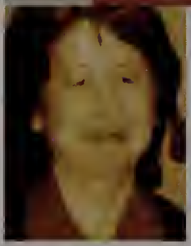
When he found a way to substantially reduce ongoing maintenance and operational costs by 40 percent by renegotiating contracts and by setting a path to bring the portal's operations in-house, he became convinced that sustaining the portal—at least until legislators could vote on it—was the right thing to do.

For several months, Kelso discussed scaling back the portal's features with the Davis administration and state IT officials. They found that the portal's design made it difficult to remove some features without disrupting the whole system. Kelso says of the portal: "It represents in the long term a very good investment opportunity for the state, and it would be a shame to lose what I think is in everybody's agreement a very robust, scalable technology that we know has provided benefits to tens of millions of Californians."

An Expert's View: "Kelso's comments that the procurements [for the portal] were poorly done points to one of the endemic problems with contracting and contract inventory [in state government]," says Carol Kelly, a government strategies analyst for Meta Group. "The public sector has to do a much better job of understanding its true costs, be it the cost of a systems integrator, a contractor or the staff involved from the state CIO's office. Frequently those aren't established up front, or when they are, the process [of doing so] becomes so onerous that everybody will avoid it."

California CIO J. Clark Kelso's first job: Decide if the state online portal, the subject of a political scandal, was worth keeping. Kelso's top-to-bottom review found that it was.

MICHIGAN



CIO: TERI TAKAI (4 months on the job)

Budget Deficit: $1.7 billion for 2004.

What That Means for IT Budget: $10 million reduction in 2003; $25 million cut in 2004. IT budget for 2003 is $424 million.

Priorities: Consolidation, e-government.

Cuts: The state avoided eliminating critical IT projects by consolidating systems and requiring contractors to reduce their compensation rates.

Methodology: High touch—Takai works one-on-one with agency heads to identify where reductions can be made.

The Problem: In 2002, Michigan began centralizing IT services to get an enterprisewide view of technology initiatives throughout the state and to save money by coordinating IT efforts across agencies. To facilitate this centralization, then-Gov. John Engler created a department of information technology whose mission was to provide the executive office agencies with all their IT needs including hardware, software, telecommunications, application development, maintenance and support. (Up until that point, each agency had its own IT group and picked which IT projects to fund.) So in addition to dealing with the budget crunch, Michigan's newly appointed CIO also has to overcome agencies' anxiety about losing control of IT purchasing power.

CIO.COM Kentucky CIO **ALDONA VALICENTI** says that when the economy goes down, demand for state services goes up. But with a tight budget, her options are few. Read how she is coping in **DIRE STATES: KENTUCKY** at *www.cio.com/printlinks*.

The Process: Because many agency employees remain resistant to the idea of centralized IT operations, Takai sits down with either the deputy director, chief of staff or COO of each agency. Together, they prioritize IT projects by first evaluating the agency's different sources of funding. For example, if the Michigan Transportation Department was requesting money for a project from the state's general fund (revenue from sales and income taxes), examining funding sources could unveil that the agency was due to receive federal money for the project, freeing up state funds for other uses.

After reviewing funding, Takai and the agency deputy director allocate money for maintenance costs. They also look at the projects the agency already has in its pipeline with the view to finishing those projects that have already been started—but only if it makes economic sense. For example, a project spiraling out of control would be shuttered.

With the remaining funds, they look at the agencies' wish lists and prioritize projects based on their ROI and their alignment with Gov. Jennifer Granholm's policy goals.

Takai says the process of figuring out which projects to fund and which to leave on the table "was pretty traumatic" this year because it was a new process and because she still had to confront push-back from agencies that didn't like the idea of IT controlling the purse strings. The process is made more difficult by virtue of the fact that Takai has to work backward when establishing her budget. She gets an idea of how much money she has to cut, then she has to estimate the costs of various projects and prioritize from there.

"It's not a smooth process by any stretch," says Takai. "It's a lot of to-ing and fro-ing. Obviously, when you're trying to do it in a short time frame, that makes it even tougher."

An Expert's View: Stuart Bretschneider, professor of public administration and director of the Center for Technology and Information Policy at Syracuse University, says new state CIOs such as Takai should recognize that with greater centralization comes the chance for greater efficiency. Michigan officials "have opportunities to think about coordination and standard setting that can also result in cost savings and efficiency gains," Bretschneider says. "I don't necessarily mean technical standard setting, though that can be a part of it, but what is the appropriate role of private-sector contractors in providing service so that individual agencies aren't making contravening decisions?"

Another mechanism for program coordination and cost savings is to create an advisory board chaired by a CIO that pulls representatives from various agencies to help in that coordination and cost sharing, he adds.

Reach Senior Writer Meridith Levinson via e-mail at *mlevinson@cio.com*.

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*SOURCE: **CIO** READER PROFILE STUDY, MRI, AUGUST 2002

CIO
The Resource for Information Executives

COMPUTER ANIMATION STUDIO CONQUERS ITS
Information Storage Challenge

BlueArc absolutely delivered what it promised to Rhythm & Hues.
—Mark Brown

Prologue

Daredevil and Babe the talking pig were powerless to solve the mounting data storage problems encountered by Rhythm & Hues Studios, the computer animation and visual effects shop that helped bring these movie heroes to life.

That titanic task fell squarely on the shoulders and IT staff of Mark Brown, VP/technology of the Marina Del Rey, Calif.-based firm, which in the mid-'90s won an Academy Award for its groundbreaking visual effects in the film *Babe*. Lacking superhuman powers, Brown's group still managed to save the day by pulling off a sweeping storage infrastructure overhaul with advanced network-attached storage (NAS) systems linked to bigger-bandwidth backbone connections.

"We're a storage-centric business," explains Brown. "Yes, we do art, but our infrastructure is all based around our use of storage, which is our lifeblood." The movement and storage of huge graphics files by Rhythm & Hues' 450 artists, producers and support staff have pushed the firm to 10 terabytes of storage today—and an estimated 40 to 50 terabytes within two years.

To overhaul this storage infrastructure, Brown and his staff needed to set a new bar for storage and networking tasks. These tasks would revamp the core business process to better serve workers and customers while achieving critical performance and financial goals.

SCENE 1: The Challenge

Prior to the infrastructure overhaul, R&H artists would start their day by logging in via their 100Mbit/sec Fast Ethernet pipes and identifying the files containing the scenes they needed. They then would proceed to construct, revise, store and eventually move the scenes to film for the firm's client list of movie-makers, commercial creators and theme-park ride operators.

Most of the roughly 250 artists were accessing and working on the same scene files, which were continually increasing in size while infrastructure bandwidth and storage stayed the same. Increasingly, this practice caused network and server bottlenecks—resulting in delays—as the pipes and attached devices became overloaded. The bottlenecks in turn caused expensive downtime.

"When workers are idle, just staring at the walls, that costs us real money, as 90% to 95% of our costs are labor," Brown says. "Coming to a grinding halt is a very painful experience, especially toward the end of projects, when artists work seven days a week to make deadlines." The company already runs a three-shift, 24-7 operation.

To tackle this bottleneck/downtime challenge, Brown and his staff leapt into action. They knew from the outset that failure to address storage and networking needs would result in decreased productivity and increased customer retention and acquisition costs in an already competitive, price-conscious and deadline-driven industry.

Why BlueArc?

BLUEARC Corporation, a leader in high-performance, highly scalable network attached storage (NAS), has created a SiliconServer Architecture that delivers the world's only file server designed to scale beyond today's 1 Gbps networks toward tomorrow's 10 Gbps networks. BlueArc's SiliconServer Architecture moves software into programmable hardware and removes the bottlenecks that limit performance in other NAS systems on the market today.

The group decided to install NAS systems that could deliver the highest availability and performance, as well as support super-high capacity network connections, all at an attractive price, and all deemed critical in support of new high-end workstations that would be five times faster than their predecessors.

"Any time we can make a purchase of storage technology that effectively enhances our ability to do things faster, do things better and with less human intervention, that's sure better for us," says Brown. The newest desktop computers—dual-processor workstations running Linux and equipped with 80-gigabyte hard drives—have indeed helped the artists work faster, better and more independently.

In evaluating NAS systems vendors, including BlueArc Corp., Network Appliance, Scale8 and Zambeel, Brown focused on four criteria: performance, cost, bandwidth and custom solutions. "We needed a vendor that realizes we're not a one-trick pony," Brown says. "We don't necessarily always need just an off-the-shelf piece of equipment—we need something that's tailored to our environment."

SCENE 2: The Choice

In the end, innovation won out. Brown and staff selected BlueArc's SiliconServers, largely because they use an innovative architecture designed to send server performance skyward by putting functionality not in soft-

CIO
Custom Publishing

ware (as its rivals do), but in programmable hardware—a key difference the vendor says triples device performance.

"The BlueArc server architecture gives you NAS on steroids by delivering a big boost in speed and a marked acceleration of throughput," says Brown, whose firm now uses four of the vendor's NAS servers. When connected to R&H's Extreme Networks switches using 1Gigabit Ethernet backbone pipes, the boxes register higher performance statistics over the company's prior system configurations. Among the benefits:

> **It's not good enough to drop a product in and say, 'Here you go.' The thing we had with BlueArc was when the product came in, they worked closely with us to make sure the product matched our expectations.**
>
> —Mark Brown

About Rhythm & Hues

Rhythm&Hues, the 15-year-old computer animation and special effects studio, gained top industry recognition in the mid-1990s for its work on *Babe*, the film about a talking pig, which earned the firm an Academy Award.

Since then, the Marina Del Rey, Calif.-based company has worked on such big screen hits as *The Sixth Day*, *Daredevil*, *Scooby-Doo*, *Behind Enemy Lines*, *Men In Black II*, *The Sum of All Fears* and, most recently, *X-Men 2*. The firm has done the same work for such television commercial characters as the Geico lizard, the Coca-Cola polar bears, and for the StarTrek experience setup in Las Vegas.

Mark Brown entered the field of visual effects in 1993. He brought 20 years of technical expertise to R&H, and claims he wouldn't change his career decision for all the money in the world.

"It's just so amazingly cool and fulfilling to watch a movie we've worked on and get listed in the credits," smiles Brown. "And the company receiving an Academy Award for its talking animal work in *Babe* was a watershed event."

For more information about Rhythm & Hues, visit **www.rhythm.com**.

Performance Improvements

- The size of file reads and writes have more than doubled, from 45 megabyte reads and 20 megabyte writes per second to 110 megabyte reads and 90 megabyte writes per second;
- A selected scene file requiring ASAP rendering took six hours before the overhaul, but only 15 minutes afterward;
- The cost per megabyte of storage for R&H plummeted 50% to 5 cents per megabyte;
- Backbone bandwidth more than tripled.

Cost Avoidance

- R&H can add 1.5 terabytes of storage across the three BlueArc boxes for $25,000, one-quarter the cost of buying a new $100,000 server to handle the extra load;
- The minimal administration and maintenance required by the BlueArc servers means that R&H can avoid hiring the three full-time workers Brown estimates would be needed to support products using direct-attached storage (DAS) or a storage-area network (SAN) systems;
- Staying with a NAS system architecture enabled R&H to avoid having to buy additional hardware needed to switch to a SAN scheme, which Brown says was not best suited to the firm's business process.

Brown won't quantify the "substantial" savings R&H realized by choosing the BlueArc servers over competing NAS servers, but he does stress the business benefits of the savings combined with the expenses avoided. "[These savings] are passed along to customers in the form of lower rates for our services, and help us stay in the hunt in the bidding for new business."

Another key, differentiating value brought by BlueArc: partnership. "When we first started working with BlueArc, we worked directly with their engineering team," says Brown. "We had one or two engineers here at almost all times, and they were constantly on the phone with us. They worked with us extremely closely over six months to make sure that the product fit our needs, and our needs didn't just fit the product."

The partnership also extended to R&H's top networking vendor, Extreme Networks, which makes the switches to which the SiliconServers are linked. BlueArc worked closely with Extreme to ensure that their respective products worked smoothly together, even after Brown's group asked the server maker to add some enhancements to its systems.

SCENE 3: The Climax

On the first day after the full-day installation, the BlueArc box, a 1.5 terabyte system, was put into service. Within just 12 hours, Brown recalls, workers had filled 1.2 terabytes, and people were happy. The downtime was gone. "It allowed us to remove all our data bottlenecks, which meant my system administration team could go on to dealing with other things instead of having to deal with day-to-day trivial aspects of data bottlenecks."

Brown's bottom line: He's solved today's daunting data bottleneck problems with a system designed to work well into the future—which includes the likely use of emerging 10 Gigabit Ethernet networking technology to link SiliconServers. That solution, Brown says, "frees us to put more work into the art and less work into the infrastructure."●

To schedule an appointment with BLUEARC to discuss your organization's 2003 storage plans, or to learn more about how BlueArc's network attached storage products and services can save your business time and money, please visit **www.bluearc.com/ciomag** or call 1-866-864-1030.

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VALUE PROPOSITION

To establish a centralized way to better track and measure the ROI of IT projects, enabling the state to rein in project costs and eliminate duplication.

THE PLAYERS

TOM VILSACK
Governor

PAUL CARLSON
Director of the IT Department's Enterprise Quality Assurance Office

RICHARD VARN
Former CIO

DEBBIE O'LEARY
Acting Director of the IT Department

RICH JACOBS
Administrator of Technology and Information Management, Iowa Department of Revenue and Finance

CASE ANALYST

DOUGLAS HUBBARD
President of Hubbard Decision Research

R.O.Iowa

By centralizing its state IT budget process, establishing a scoring method and instituting value metrics, Iowa has become a national model for gauging project ROI

BY ELANA VARON

IN IOWA STATE GOVERNMENT, as in most organizations, there was a time when few outside of the IT department gave technology much thought. If an agency needed money for an IT project, officials slipped it into the budget. If a legislator asked what the money was for, a good sales pitch would close the deal and a poor one might mean no funding at all.

But along came Y2K, and officials in Iowa government started to think about the $22.5 million needed to fix the bug, and how best to spend it. To ensure taxpayers got their money's worth, Iowa's Year 2000 Project Office audited agencies' progress toward compliance and reviewed every expenditure before reimbursing them from a central fund. At the end of the project, an estimated $3 million was still left, unspent, in the Y2K fund. Meanwhile, state leaders decided to examine the value they were getting from other IT expenditures. "I was a legislator for six years, and we had no clue," says Gov. Tom Vilsack, a Democrat who was first elected in 1998.

And so the idea for the Iowa Return on Investment Program was born. Today, three years after it was launched, the program has become a national model for documenting value and prioritizing IT investments in the public sector. Last year, the National Association of State Chief Information Officers named the program the winner in its competition for the best state IT management initiative. The Iowa program helps state leaders identify the most pressing new IT investments at a time when competition for funds is fierce. In addition, it has saved taxpayers more than $5 million since its inception by enabling officials to combine duplicative projects and flag unnecessary expenditures.

VALUE MODEL

As one of his early initiatives, Vilsack, now in his second term, began promoting performance-based government, an approach to public sector management that focuses on measuring the results of government programs. He realized that the principles used to validate the Y2K expenditures could be applied to any IT project. "I think [Vilsack] saw there was a lot of value in independently verifying and validating," says Paul Carlson, director of the IT department's Enterprise Quality Assurance Office, which is in charge of the ROI Program.

When Carlson and then-CIO Richard Varn devised the new IT value methodology in 1999 using various ROI research sources, they incorporated the two main features of Y2K management. First, new investments are paid for primarily from a pot of money called the Pooled Technology Account, which is appropriated by the legislature and controlled by the IT department. Pooling the funds makes budget oversight easier and fights duplication. Second, the IT department reimburses agencies for expenses from this fund only after verifying that they're necessary. If an agency's expenditures aren't in line with the project schedule, it's a red flag for auditors that the project could be in trouble. The Enterprise Quality Assurance Office will consider conducting post-implementation audits next year. But Carlson says the details concerning how projects are chosen for audits and how those audits will be conducted are up in the air, pending decisions by John Gillispie, the executive director of the Iowa Communications Network, who is expected to manage the IT department after a proposed agency reorganization is complete.

To support spending decisions, agency managers have to document the expected costs and benefits according to a standard set of factors. The maximum score for each factor ranges from five to 15 points, for a maximum total score of 100 points. In addition, they must specify metrics related to those factors to determine the project's success (see "How Iowa Scores Investments," Page 102).

The ROI Program saved taxpayers more than $2.5 million a year during 2001 and 2002, about 16 percent of what the state spent overall on new IT projects during that period. Because the scoring system is weighted toward projects that comply with standards and directly benefit citizens, the program promotes initiatives like information security that are critical but don't have vocal political constituencies. By encouraging cooperation between agencies, it has also transcended decades-old bureaucratic fiefdoms. Agency managers "started to see that joint projects and collaborative projects were the ones that were getting done," observes Varn.

EXPERT ANALYSIS

AN EFFECTIVE MEASURE

BY DOUGLAS HUBBARD

Douglas Hubbard is president of Hubbard Decision Research. He can be reached at *dwhubbard@hubbardresearch.com.*

Iowa's mission to implement a formal approach to portfolio management has eliminated redundancies, justified projects without strong political constituencies, and provided active project and budget oversight. Contrary to some stereotypes, the private sector can learn a lot from state governments. Iowa deserves the National Association of State Chief Information Officers' accolades.

However, I am skeptical that the scoring system is helping Iowa choose the best projects. Research over the years has shown that subjective scoring methods are not as effective as other valuation methods. The Enterprise Quality Assurance Office should consider methods that can assign dollar values to the criteria it uses to measure a project's worthiness. While it does calculate financial impacts for such things as transaction savings, it could represent any other value this way as well. I routinely quantify the value of intangibles in IT organizations, including those in government agencies.

I don't believe that scoring is an effective method for quantifying risk or the value of customer service. If the Quality Assurance Office officials were to replace the language of scores with the language of actuaries, CFOs and economists, I believe they would see yet another significant improvement in IT decision making.

The program hasn't ended political wrangling over the IT budget, however. Varn was asked to resign in December (along with several other cabinet directors), and his resignation was accepted partly because he and Vilsack did not agree on how big the technology budget should be (Varn wanted more money and a more integrated IT organization). Agencies still battle with the legislature for approval of specific projects. But it's easier for officials to make informed decisions. "We're able to make decisions about what should be funded based on data, rather than based on politics," says Debbie O'Leary, the acting director of the IT department.

EVERYONE KNOWS THE SCORE

Like many processes in government, IT investments start with a form. A Return on Investment Program Funding Application must be completed for any expenditure over $100,000, Pooled Technology Account requests, any request for money from a source outside of an agency's annual appropriation, and any expenditure that's not routine. Waivers that let agencies skip the ROI process are allowed for some large, routine expenses but are quietly discouraged. During the fiscal year 2003 budget approval process last year, agencies asked for 17 waivers and were granted only six. They got the message and requested only four waivers

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HOW IOWA SCORES INVESTMENTS

Iowa scores proposed projects based on 10 criteria used to determine value. The highest scoring projects get priority for funding. Below is an explanation of the criteria, the maximum points each one can receive and examples of how the top-ranked project proposed for funding next year was scored.

CRITERIA AND POINT SYSTEM

Statutory requirement (15 points total): Project is required by law or regulation, or it is needed to comply with state IT standards. No points unless the project fulfills a mandate.

Improves customer service (15 points): The bigger the improvement, the more points.

Impacts citizens (10 points): More points for greater impact.

Reengineers government processes (10 points): The most points for "significant" use of IT to revamp business processes.

Project participants (10 points): The most points for projects needed by every state agency.

Risk (10 points): More points for projects with low technical and business risk and high chance of success.

Experience and past performance (5 points): More points to agencies that are better at achieving project objectives.

Funding requirements (10 points): More points to projects at advanced stages of implementation.

Additional funding sources (5 points): More points to projects for which agencies will share costs with the IT department.

Financial ROI (10 points): The higher the ROI, the more points.

A Project Scorecard

This is the budgeting request that received the highest score for FY04. The Electronic Tax Administration filled out the necessary Return on Investment Program Funding Application, and it was scored and ranked by an information technology council, a group that includes the Iowa CIO, the CIOs from major state agencies, representatives from the state judicial and legislative branches, and private citizens.

ELECTRONIC TAX ADMINISTRATION
FY04 request: $521,000

CRITERIA	PTS.
Statutory requirement	11.8
Improves customer service	13.5
Impacts citizens	9.4
Reengineers government processes	9.0
Project participants	7.1
Risk	9.3
Experience and past performance	4.7
Funding requirements	8.6
Additional funding sources	4.9
Financial ROI	9.8
TOTAL	**88.1**

in their fiscal year 2004 proposals.

To complete the form, agencies describe the project according to 10 criteria that are used to define value. "In the private sector, what you decide to invest in is substantially based on a cost-benefit analysis," says Carlson, who culled the criteria from value methodologies used by both public- and private-sector IT organizations. "Because we're in the public sector, we have to take into account more than just a dollar."

An information technology council—including the Iowa CIO, the CIOs from major state agencies, representatives from the state judicial and legislative branches, and private citizens—scores each application and ranks them. Projects can get up to 15 points for fulfilling a legal mandate or complying with enterprise technology standards. Improving customer service may garner another 15 points. The bulk of the remaining score takes into account such factors as ROI and risk, whether the project will streamline business processes, whether it affects multiple agencies and, for multiyear projects, the success of earlier phases. The application includes a methodology for assessing benefits that—as is the case with many public-sector initiatives—aren't easily quantifiable.

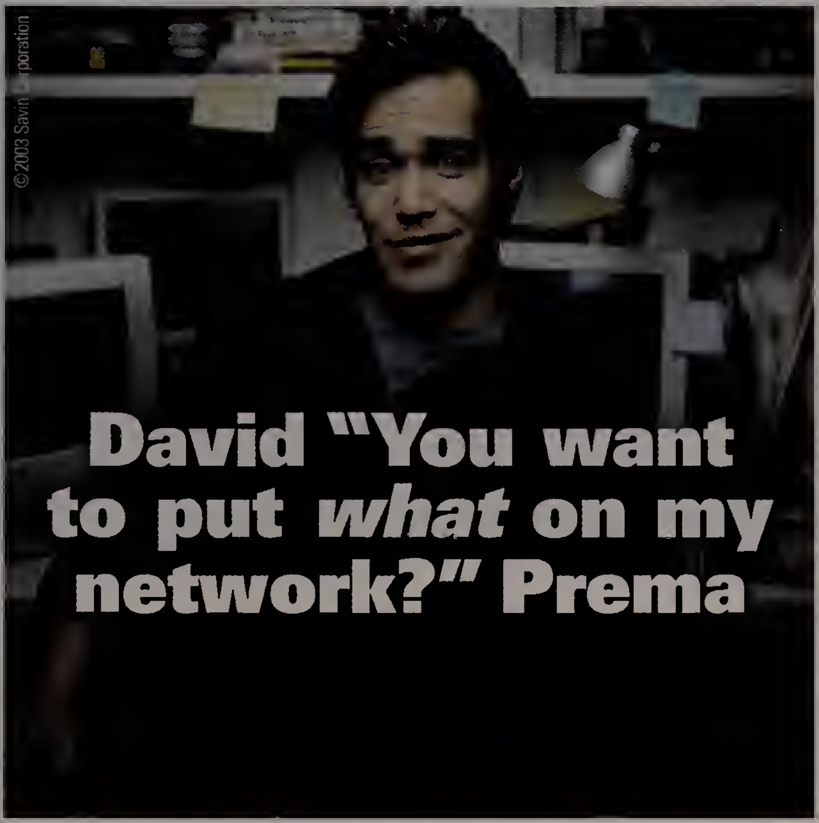
Projects that protect citizens, like security, and initiatives that improve access to government services, like electronic tax administration, score consistently high.

SAVE A PENNY, SAVE MILLIONS

Iowa's statewide budget for new IT projects has recently averaged about $15.7 million annually. The available funds typically cover about 24 percent of the total money Iowa agencies request for new investments—about $76 million next year. O'Leary has to find a way to stretch every dollar. One way she'll do it is to roll similar projects into a single implementation. Another will be to shave costs once projects are under way.

The ROI Program requires agencies to detail their technology requirements and functional needs, which enforces standards, but it also helps officials identify duplicative expenditures. During a review of funding requests for 2001, Varn and his staff noticed that several agencies were proposing to build pieces of an ERP system, such as electronic procurement and human resources management. Varn suggested the state could deploy a single ERP system that agencies could share for less money. The project, which has an estimated cost of $9.6 million, could easily cost many times more, says Varn, if agencies were allowed to go it alone. Meanwhile, agencies are finding ways to collaborate on their own. Some requests from agencies for money to fund compliance with the federal Health Insurance Portability and Accountability Act, which took effect last month, came already bundled.

Once a project is funded, the state saves money by scrutinizing agencies' expenses. Agencies have to submit their purchase orders and invoices to the Enterprise Quality Assurance Office for approval before they can be reimbursed. As officials discovered during the Y2K project, purchases may



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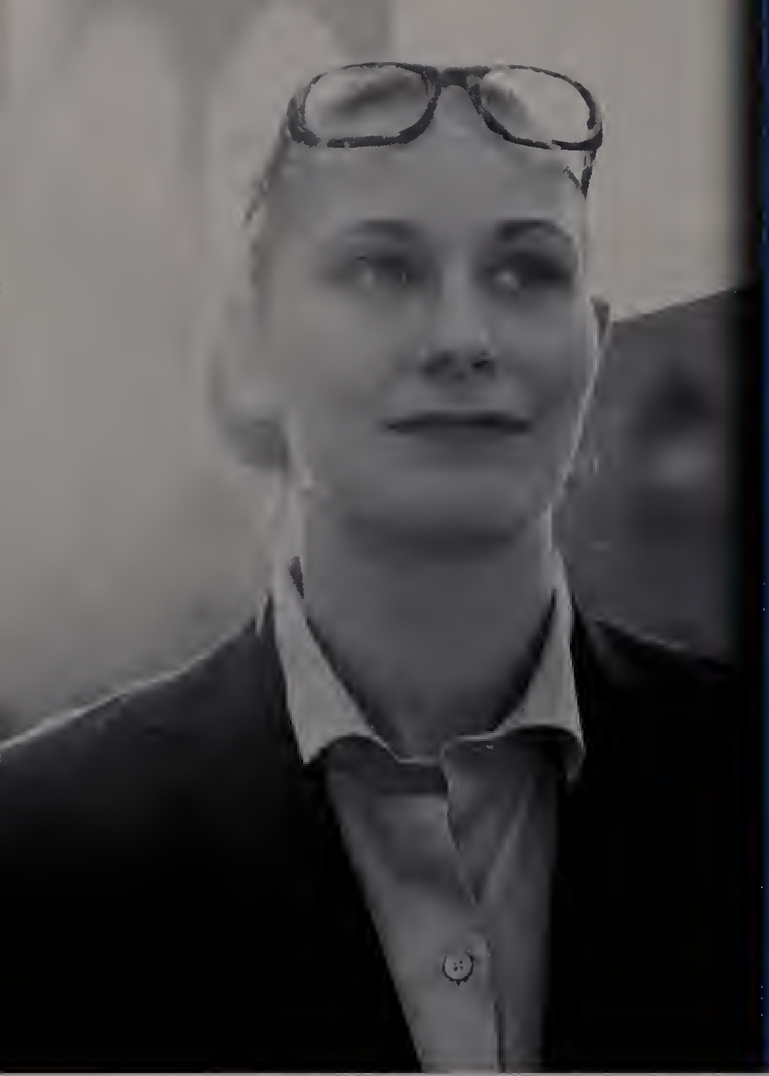

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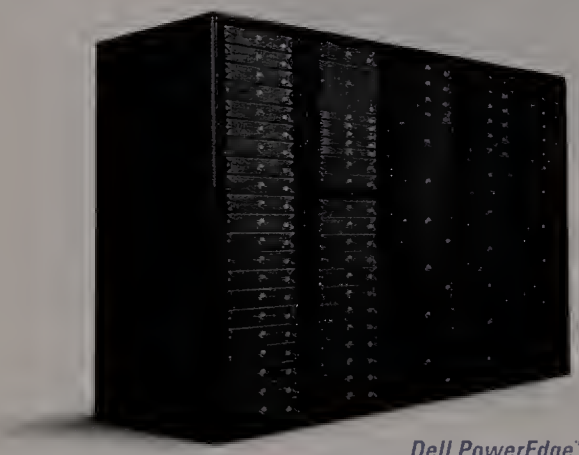

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In a recent Dell test, a Dell/Oracle® 9*i*/Linux solution running on an Intel® Xeon™ processor-based Dell PowerEdge™ 6650 server was 89% faster and 39% less expensive than a Sun Fire V480 server running an Oracle 9*i*/Sun Solaris solution.[1] To see complete test results, go to www.dell.com/migration15.

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[1] Tests by Dell in January 2003 on baseball database. Dell configuration: Dell PowerEdge 6650 server with four 2.0 GHz Xeon MP processors, Red Hat Linux Advanced Server 2.1, 3 Year Gold Support. Price: $32,701 (www.dell.com, 1/20/03). Sun configuration: Sun Fire V480 server with four 900 MHz UltraSPARC III processors, Solaris 9 (12/02 version). Price: $53,796 (www.sun.com, 3/17/03), 3 Year Gold Support. For details and results, see: www.dell.com/migration.

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cost less than agencies estimated they would when they were first proposed.

NEW RIGOR

After four years, agencies have adopted a more rigorous approach to assessing value that has brought agency technologists, finance officials and business line managers together. Business analysts in IT departments typically don't understand finance well enough to complete the ROI analysis, so agencies need a cross-functional team to write a successful application.

"It gave us structure to say to our customers—because it's not an IT responsibility—that you must provide answers to these questions," says Rich Jacobs, administrator of technology and information management in the Iowa Department of Revenue and Finance. At first, agency executives were all too willing to identify the projects that they wanted and let IT handle the paperwork. That changed once officials realized that legislators were responding to the list of priorities presented to them from the ROI Program. "We felt like we didn't just have to ask for it; we had to demonstrate that we could accomplish it," says Jacobs.

Still, many agencies resented having to cough up so much information because they didn't understand why all of it was relevant. Agency officials now know how the data is used, but the ill-feelings haven't completely dissipated. The absence, to date, of full audits is one sore point, according to Jacobs. "If you say you're going to audit, you have to be able to honor that commitment, or [providing the necessary data] becomes a waste of people's time. No one has excess staff to start up an audit program," he says, but the long-term credibility of the ROI program depends on it.

Getting funding through the ROI Program is, however, better than doing business the old-fashioned way, when getting a project funded had less to do with its merits than "networking and your ability to monitor budget requests," Jacobs says. Lawmakers still choose some projects for political reasons. Carlson says that in such cases, the methodology helps improve projects by encouraging officials to comply with state IT standards. Varn thinks the program also positions agencies better for success once they get funded because they have to document technical and business risks. Before the ROI Program, he says, "a lot of people didn't do project management, and they didn't know what the technology was going to be. [They said] just give me money, and I'll do good work with it."

Jacobs confirms the benefit. The revenue and finance agency had started several small electronic tax administration initiatives in the mid-'90s that were largely funded through its operating budget. But as the state tightened its belt during the past few years, IT wasn't a priority with the legislature. To move forward with online filing—already a reality in other states—and some related initiatives in 2001, the department applied for a grant from the Pooled Technology Fund. The process forced officials to look at the project holistically; they identified six phases that would be completed over several years.

Not long after the ROI Program was established, the legislature enshrined it in law by enacting the Accountable Government Act, which requires the Iowa Department of Management to establish methodologies for evaluating all state investments, not just IT projects. "One of the concerns I have is that people don't see the relevance of government in their lives day to day," says Vilsack. "As I went out on the stump, I wanted to be able to tell people that for your investment in X number of tax dollars, this is what you get." CIO

E-mail feedback to Senior Editor Elana Varon at *evaron@cio.com*, and send your stories of IT value to Mindy Blodgett at *mblodgett@cio.com*.

CIO.COM To see a copy of Iowa's **ROI PROGRAM FUNDING APPLICATION,** which state agencies use to make their business cases for IT projects, visit *www.cio.com/printlinks*.

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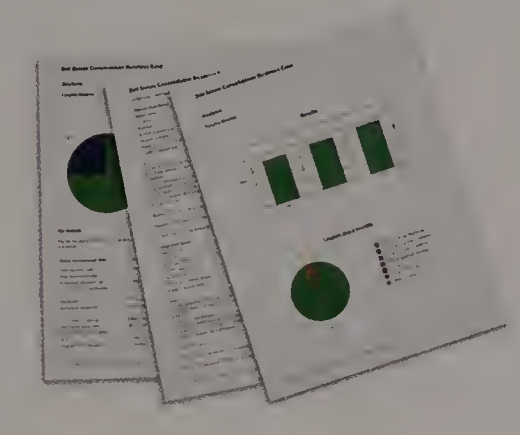

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TUESDAY, JUNE 17

3:00 pm—5:00 pm
Registration

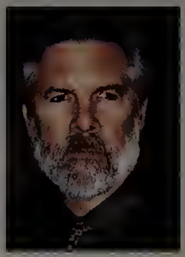
11:30 am—5:00 pm
Golf Tournament

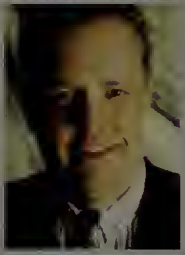
6:30 pm—8:30 pm
Registration, Welcome Reception & Special Presentation

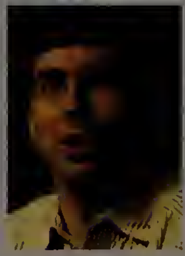
WEDNESDAY, JUNE 18

7:00 am—8:00 am
Networking Breakfast

8:00 am—8:20 am
Welcome

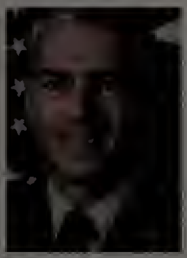






LEW MCCREARY, *Editor in Chief, CSO Magazine*
BOB BRAGDON, *Publisher, CSO Magazine*
JONATHAN ZITTRAIN, *Conference Moderator and Cofounder, The Berkman Center for Internet & Society, Harvard Law School*

8:20 am—9:20 am
America's Place in a Global Society



WESLEY K. CLARK, *Former NATO Supreme Allied Commander & CNN Military Analyst, author of Waging Modern War*

As American business is increasingly sustained by the global market, international political and military strategy occupy a role of vital significance. Clark has been on the front lines of the world's emerging markets, intimately aware of the political strategy and psychology that dictate corporate bottom lines. He applies his experience and skills in strategic leadership, high technology, training and organizational development to the challenges facing us today.

9:20 am—10:20 am
Creating a Culture of Security
ROBERT LITTLEJOHN, *Vice President of Global Security, Avon*

Security is an integral piece of the business process—it doesn't function alone. It is essential that all domestic and international employees understand exactly what to do in situations that involve both physical and cyber security. To build a culture of security the chief security officer must take on a strategic role in the organization, emphasize leadership and communication, and develop the policies and plans that protect the company's people and other assets.

10:20 am—11:00 am
Coffee Break and Sponsor Exhibits

11:00 am—12:15 pm
Sponsor Briefings

12:15 pm—1:45 pm
Networking Lunch

2:00 pm—2:30 pm
Special Session

2:30 pm—3:30 pm
Governance and Policy Management

Moderator: DEREK SLATER, *Executive Editor, CSO Magazine*

Participants: NEIL JACKSON, CISA, *Business Manager Internal Audit, Global Information Technology, E*TRADE Group, Inc.*

BILL SPERNOW, *CISO, Georgia Student Finance Commission*

Security governance issues are a particularly thorny topic, as more executives and boards of directors understand their responsibility and accountability in information security governance. They will be challenged to prove they are managing aspects of security to a level that will satisfy business partners, customers and stakeholders—and that will minimize potential litigation. A blue-ribbon panel discusses governance issues, who makes the policies, what they look like, how they get made and how you enforce them.

3:30 pm—4:30 pm
Developing an Effective Framework for Risk Assessment

THOMAS P. ARMOUR, *Program Manager, Defense Advanced Research Projects Agency (DARPA)*

In order to effectively assess your risks, you need to develop a framework and a highly systematic approach. One key is first analyzing *Threat*, *Vulnerability* and *Consequences* independently, and then assess them altogether. If the *Threat* and the *Vulnerability* aren't large—but the *Consequences* are massive, you've got a very big problem. What are the trade-offs between instituting appropriate levels of security and stifling the business? The approach, tools and analytics are applicable to both physical and cyber security.

4:30 pm—5:30 pm
The Peer-to-Peer Networking Reception

THURSDAY, JUNE 19

7:00 am—8:00 am
Breakfast & Informal Discussion Roundtables

8:00 am—9:15 am
What Every CSO Should Know About Intellectual Property

Moderator: JONATHAN ZITTRAIN

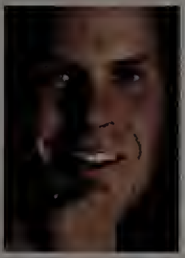
Panelists: MELISE R. BLAKESLEE, *Partner, McDermott, Will & Emery*

JOHN P. PONTRELLI, *Global Security Director, W.L. Gore & Associates*

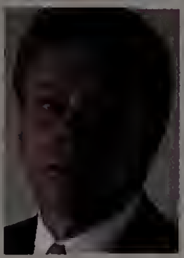
LYNN MATTICE, *Director of Global Security, Boston Scientific*

More organizations are realizing the potential threats of not safeguarding their own intellectual property, and of the possible liability of misusing others' property, even unintentionally or unknowingly. Many are seriously weighing the risks of not implementing digital rights management (DRM) technologies. Our panel explores recent trends in intellectual property issues and litigation, and discusses the impact on businesses of all types.

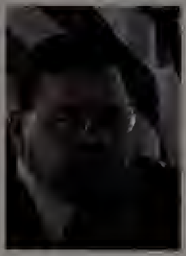
9:15 am—10:30 am
Evaluating New Technologies



MODERATOR: CHRIS LINDQUIST, *Technology Editor, CSO Magazine*



BOB DEGAN, *Senior Vice President, Corporate Security, First Data Corp.*



COLONEL THADDEUS A. DMUCHOWSKI, *Director of the Information Assurance Directorate, Department of the Army*

DAVID MACLEOD, *Ph.D., CISSP, CPHIMS, Director of Security, The Regence Group*

JEFF WACKER, *EDS Fellow, vice President & CTO, EDS*

It's been frequently said that security is a business problem, not a technology problem. However, technology does play a crucial role in your ability to provide both physical and cyber security. Our expert panelists talk about what technologies they see in the near term that will have the most impact on the CSO and CISO. What will work, what won't—what you should be afraid of, and why.

10:30 am—11:00 am
Coffee Break & Sponsor Exhibits

11:15 am—12:25 pm
Sponsor Briefings

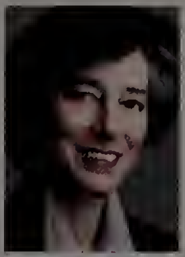
12:25 pm—2:00 pm
Networking Lunch

2:15 pm—3:30 pm
DrillDown Breakout Sessions

These sessions are designed to give conference attendees the opportunity to work and network in smaller groups, and discuss specific topics and issues in greater detail.

3:45 pm—5:00 pm
Ethics and Privacy in Action: A Scenario Panel

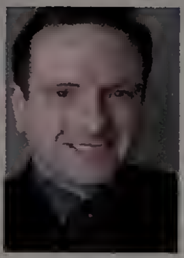
Moderator: JONATHAN ZITTRAIN



Panelists: DEBORAH WEINSTEIN, *Labor & Employment Law Attorney, Eckert Seamans Cherin & Mellott, LLC.*

CHRISTOPHER HOOFNAGLE, *Deputy Counsel, Electronic Privacy Information Center*

TERRY LENZNER, *Chairman, Investigative Group International*



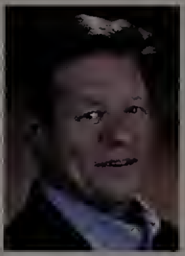
DOUGLAS MILLER, *Executive Director of Privacy, America Online*

An action or policy may very well be legal—but if it isn't ethical, you may be setting yourself and your organization up for some nasty surprises (not to mention nastier lawsuits). What's legal, what's ethical—what's the difference and who decides? What role does the corporate culture play in ensuring that all employees consistently adhere to policies? Our panelists—along with audience participants—explore various scenarios.

5:00 pm—5:15 pm
Closing Summary
JONATHAN ZITTRAIN

5:15 pm—6:00 pm
Networking Reception

7:15 pm—9:30 pm
Black Tie Dinner & Entertainment



JIMMY TINGLE, *Social/political Commentator & Humorist*

Tingle is regarded as one of the top social and political commentators and humorists in the country, uncovering the absurdities of modern life with an irreverent and incisive wit. After two days of hard work and serious presentations, who among us can't use a good laugh?

Presentation of the CSO Magazine Compass Awards

BOB BRAGDON & LEW MCCREARY

CSO Magazine is pleased tonight to honor several individuals whose leadership, innovative thinking and dedicated effort have advanced security awareness, policies, technologies and practices for the betterment of the field.

9:30 pm—11:00 pm
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Confrontation Clinic: A study on swaying your boss

LEADERSHIP AGENDA | 114
By Susan H. Cramm

10 Worst Mistakes CIOs Can Make: How to get yourself thrown out of the game

Reader Q&A

How comfortable do you find the hot seat? E-mail Leadership and Management Editor Edward Prewitt at *hotseat@cio.com*.

A Successful Switcheroo

CIOs find it hard work to change industries, but groundwork and speed make it possible

BY MEGAN SANTOSUS

When Paul Lemerise joined an apparel manufacturing company as its first vice president of MIS, he had quite a leadership challenge on his hands. The company's IT infrastructure was in such disarray that upward of two months were needed to close the books. When systems were down—as they were 50 percent of the time—manufacturing operations came to a halt. To gain control of IT, Lemerise got rid of IT contractors and hired a full-time staff. Unfortunately, the only place to house the nascent IT department was in a men's room, so Lemerise had to rip out the stalls, toilets and sinks to make room for the cubicles, chairs and PCs.

As fundamental as these challenges were, however, they weren't Lemerise's biggest hurdle in the new job. Harder still was learning the intricacies of an industry in which he had no experience; his previous IT job had focused on sales and marketing but provided no insights about manufacturing. "When you change industries, you're disadvantaged because you don't know what suppliers expect," he says. "You don't know about the software needed to support the suppliers. You don't know what systems your competitors are using or what is the best application for your particular industry."

That was in 1980. Since then, Lemerise has spent 25 years as a CIO or equivalent in a multitude of industries, including aerospace, wholesale distribution, insurance and retail. Now a partner with Tatum CIO Partners, a rent-a-CIO outfit, Lemerise is proof that changing industries isn't a barrier to leading an IT organization. Switching industries is something that an increasing number of CIOs are doing, according to Carl Gilchrist, a partner and leader of the CIO practice at executive search company Spencer Stuart. "Inside every business there are supply chains, distribution processes, HR and finance systems," he says. "That's why it's easier for CIOs to move among industries than CEOs."

Still, CIOs can't change industries without doing considerable legwork. With any new job, it's necessary to acclimate to the culture, learn the intricacies of the business, get up to speed on relevant technology and build strong relationships with peers. Making the move to a new industry, however, presents CIOs with a steeper learning curve, say those who have done it.

And industry switchers typically don't have a lot of time to waste. In order to gain the trust of executives and establish credibility among the IT staff, new CIOs typically have a 90-day window or less in

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which to make their mark. The reason for the urgency: When a company taps a CIO from outside its industry, often it's because the company is in dire need of fresh blood. In other words, CIOs who switch industries had better be prepared to hit the ground running.

The Need for Speed

When it comes to gaining credibility, nothing speaks louder than fast action, and CIOs new to an industry are uniquely positioned to benefit from short time frames. "When you arrive, expectations are that you're going to improve something or take the company to the next level," says Greg Buoncontri, senior vice president and CIO of postal services and document management company Pitney Bowes. CIOs can use that expectation to their advantage. Buoncontri, who had previously worked in the pharmaceutical industry, quickly evaluated Pitney Bowes' IT infrastructure and determined that a move to shared services was in order. "Within the first 90 days, I asked for $50 million and got it," he says.

Learning about a new business is particularly critical for switchers because they lack an industry-specific track record, which can result in a credibility gap among their peers. Tim Wright, CTO and CIO at Geac Computer, a developer of enterprise software, spent nearly two months doing research on Geac and its industry before he moved from Internet company Terra Lycos. He read material from McKinsey & Co. (compiled during a previous restructuring), pored over minutes from board meetings and studied analyst reports. When he started his job in late 2002, Wright was already up to speed on Geac and its IT needs.

While the research gave Wright confidence from day one, it also served a much more important purpose. "Building credibility within the executive team is the most important aspect of leadership because you want them to trust your decisions," he says. Having solid knowledge about Geac at the outset was Wright's way of signaling to his peers that he was ready to spend time with them learning about their particular challenges rather than learning about industry basics. Within 60 days of his arrival, he had ripped out the legacy customer databases, which were organized along business lines, and deployed a single enterprisewide CRM system from Salesforce.com.

CORPORATE CULTURE

Four Questions to Ask a New Company—Before You Join

Len Vairo, partner for technology and board services at executive search firm Christian & Timbers, has placed several CIOs in industries new to them. Joining a different industry can present a formidable learning curve, Vairo says, but cultural differences pose an additional hurdle. "It can be a real derailment to find out that culturally things get done in a different way than you thought," he says. His advice: Interview the company as much as it is interviewing you by asking the hiring manager and executive peers the following culture-related questions:

1. What are the characteristics of a successful person at this company?
2. What are the key performance indicators of the business?
3. What is the biggest perception or misperception of the IT organization?
4. How do the most important decisions in the company get made?

–M.S.

Sometimes a CIO's previous work experience can be an asset. Publisher Dow Jones recently shifted its marketing emphasis from producing content that appealed to a broad range of customers to a strategy of satisfying specific consumers' needs. Bill Godfrey, who arrived at the company in 1999, after holding IT positions in insurance and financial services, had experience in customer segmentation. As vice president and CIO, he's currently implementing a CRM project. His perspective as an outsider is valued by executives who look to him to align IS behind the business's new goals.

Soon after Jeff Kubacki became vice president of information services at Ecolab, a pest control and cleaning and equipment services company, in November 2002, he held one-on-one talks with the CEO, COO, CFO and business unit leaders. Kubacki learned in these conversations that few understood what value IS was providing. To improve his department's reputation, Kubacki drew on his experience in the eye care and computer hardware industries to restructure IS as an internal service provider. "We [in IT] think of EDS and IBM as our competitors, and our goal is delivering value at a competitive cost," he says.

Culture Club

The need for a CIO to quickly assume the mantle of leadership places an added emphasis on learning about his new company's culture. A particular kind of culture can dominate an industry; engineering cultures often characterize manufacturing companies, for example. Yet company culture can be difficult to grasp, and its

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importance is sometimes overlooked.

David Dotlich, a partner with executive coaching company CDR International, agrees that getting a pulse on company culture is difficult, yet believes it's even more important than learning the ins and outs of a new industry. As Dotlich sees it, a company's willingness to change is primarily a cultural issue—one that can trip up a new CIO faster than a lack of industry knowledge. "You need to know who has the power to make decisions, how decisions get made and who influences whom," he says. CIOs should find out that kind of information before accepting a new job (see "Four Questions to Ask a New Company—Before You Join," Page 110).

John Carrow, Unisys CIO and vice president for worldwide IT, boils culture down to personal chemistry among his peers. After a stint as CIO of the city of Philadelphia, Carrow joined Unisys in 1996 just before the company embarked on a major transformation from a hardware manufacturer to a services provider. No amount of due diligence could have prepared him for Unisys's new strategic direction, but he was able to take the change in stride because he was focused on his new peers rather than corporate strategy. "The biggest part of determining whether or not you'll be successful—regardless of whom you report to—is the chemistry mix among the people you work with," Carrow says. In that regard, moving to a new industry is no different than starting any new job.

Of course, being savvy about company culture is only one step on the path to credibility and trust. Outsider CIOs have to walk a fine line between an executive management team that seeks change and an IS group that's wracked with anxiety over the prospect of change. John Parker, who moved from the airline industry to become investment company A.G. Ed-

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MANAGEMENT REPORTS

Confrontation Clinic

A Study on Swaying Your Boss

It's never easy to confront your boss, but sometimes it's necessary—when you're convinced a crucial decision has been made incorrectly, for instance. The key to effecting the change you seek lies in how you prepare yourself for the discussion, says corporate psychologist Elizabeth Gibson, a senior consultant with RHR International.

A common mistake people make when confronting their superiors is to engage in a kind of pregame ritual. They pump themselves up to do battle. "That's not a good idea," says Gibson. "People get up a head of steam. They don't like confrontation, so in order to go in and challenge their boss, they have to get really riled up."

This tendency inevitably leads to the "you" scenario. "They go in and say, '*You* throw everything off track when *you* do this.' It's blaming and pushing the responsibility on [the boss], and that raises defenses," Gibson says. And when defenses go up, the window for constructive communication closes.

Gibson, who oversaw an epic change management project at Best Buy and cowrote a recent book on the subject, *Big Change at Best Buy*, recommends a three-step process to avoid the "you" scenario. Step one is self-assessment; determine how angry you are and purge yourself of those destructive emotions. "You can always talk into a tape recorder and play it back," she suggests. Step two: Ask yourself what you really want. "If I could wave my magic wand and get exactly what I wanted out of this meeting, what would it be?" Gibson says. This exercise helps to clarify your goals.

The final step is to place yourself in the boss's shoes. Different individuals have different motivations; some aim for status and recognition, while others value a reputation for expertise or frankness. Think about how you can cater to your boss's motivations to accomplish your goals and those of the organization.

Now it comes time to go toe-to-toe. The keys to a productive exchange are patience and coolheadedness. "Listen more than you talk, ask for the [boss's] point of view, and [demonstrate] active listening skills by clarifying and confirming," Gibson advises. "It's much more of a dialogue."

More important than any of these steps, however, is your mind-set: You have to be open to change. "You can't delegate change, and you can't be exempt from it," Gibson says. "It won't work if you believe that." Much like any relationship, in order to prompt a change in someone else, you must be prepared to change yourself.

Now keep the confrontation clean and no hitting below the belt.

–Daniel J. Horgan

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wards's senior vice president and CTO in January 2001, was on the lookout for "fear paralysis" among the incumbent IT management team. "Initially, they don't know what you want, and they think they'll get replaced," he says. Parker's advice: Be candid and clear about goals for the IT organization, and assure employees that their jobs are safe if they can satisfy those goals (as long as that's true).

Kubacki found that engaging Ecolab's IT staffers in his plans for change helped allay their misgivings. One of his first tasks was talking with IS employees about their job challenges—"really focusing on the people issues," he says. Staffers were willing to embrace change if initiatives would help them do their jobs better.

> **"When you arrive, expectations are that you're going to improve something or take the company to the next level. Within the first 90 days, I asked for $50 million and got it."**
>
> –Greg Buoncontri, SVP and CIO, Pitney Bowes

Once the transition period is over, a CIO who changes industries is judged by the same leadership criteria as any other executive. As Unisys's Carrow sees it, if he helps make the people around him in both IT and the business successful, he's done his job. CIO

Have you found it difficult to change industries? Send your story to *hotseat@cio.com*. Senior Editor Megan Santosus can be reached via e-mail at *santosus@cio.com*.

Leadership Agenda BY SUSAN H. CRAMM

10 Worst Mistakes CIOs Can Make

How to get yourself thrown out of the game

Life's too short to make stupid mistakes—or I should say, Your career is too short to make the same mistakes others have been making for years and years. We have all seen promising careers derailed too early over something that could have easily been avoided, if only they had known. Wouldn't it be great to peer into the minds of seasoned CIOs and extract their wisdom? Unfortunately, few mentors are secure or reflective enough to share their mistakes in a way that could benefit others. And once CIOs assemble at a conference, they become charter members of "the great liars club," in the words of one of my clients. In an attempt to fill the void, I'll share with you some of the well-intentioned, stupid mistakes that my clients (and I) have made over the years.

1. **REIGN FROM YOUR OFFICE.** Let your assistant book your calendar on a first come, first served basis so that you have meetings every half hour with your direct reports and vendors. Don't listen to the little voice telling you that the majority of your time should be spent with your customers and the front line of the business. Instead, delegate those activities to your staff.

2. **BE STRATEGIC, NOT TACTICAL.** Believe executives when they say, "We need a change-agent CIO to help lead business transformation." Dedicate all your time to leading strategic initiatives. Ignore the grumbling about your high cost structure, poor customer service and uneven operational performance.

3. **BE TACTICAL, NOT STRATEGIC.** Believe executives when they say, "After a period of hefty IT investments, we are well positioned with our capabilities and need somebody to get the costs under control." Focus solely on operational excellence, relying on budget constraints to manage demand.

4. **ADDRESS DEMAND ON A "YOU PAY, WE PLAY" BASIS.** Cash all the checks the business is willing to endorse to IT. Assume that a willingness to pay corresponds to a value proposition and that you will not be held accountable for unrealized value and soaring operational costs.

5. **SAY "YES" TO EVERYTHING.** Agree to all client requests, and trust that you can get internal supply to flex infinitely with demand by using tactics like outsourcing, skill development and improved processes. Ignore the fact that there is a practical limit on the number of investments that can be well managed and the amount of change a business can absorb.

6. **ALWAYS SAY "NO."** Institute a governance monarchy and appoint yourself king. Assume that you were hired to take tough stands, and eschew the other tactics for managing demand (strategy making, senior executive governance and investment management) as inefficient.

7. **SUBSCRIBE TO THE BIG BANG THEORY OF DEVELOPMENT.** Ignore the

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Hot Seat

mountains of research about the need for short cycle time of projects. Approach multiyear initiatives as a single project with a known destination. Assume that the business context and leadership will stay stable over the long term.

8. TREAT ARCHITECTURE AND SECURITY AS OUTPUTS RATHER THAN INPUTS. Shape infrastructure on a project-by-project basis, and ignore your fiduciary responsibility to leave the place in better shape than when you arrived.

9. PRETEND THAT YOUR ORGANIZATIONAL WEEDS ARE REALLY UNTENDED FLOWERS. Deal with poor-performing employees by working around them or lowering your standards. Use outsourcing to get critical skills, and focus your in-house resources on keeping the business running.

10. RELY SOLELY ON YOUR GUT. Support the Balanced Scorecard approach to drive and monitor strategic change, but don't bother putting measurement systems in place for cost and urgency reasons. Use gut and instinct as your guide, and assume that your unwritten record of accomplishments will stand on its own as the political winds kick up dust in your direction.

As an executive coach, I help clients avoid stupid mistakes. Stupid mistakes are the type that will get you thrown out of the game before you really get started. In the course of your career, you will still make mistakes, but they will be more sophisticated—and, although painful, will enhance your competence. Once you have the basics of the IT game covered, you are free to develop your own playing style. As long as your batting average is pretty good, you will live through the mistakes to play another day.

Reader Q&A

Susan H. Cramm answers questions on "10 Worst Mistakes CIOs Can Make"

Q: I understand that we want to be strategic and tactical at the appropriate times and situations. But how can we both be tactical during a crisis and still give ourselves the time to be strategic?

A: Good question! It's easier to write about the top 10 mistakes than avoid breaking them. During a crisis, you have to be tactical. The only way to increase time devoted to strategy is to build strategy-making time into your calendar. Analyze your schedule over a four- to eight-week period, and identify where your time is going. Many times, you can get four hours of planning time a week by reducing the frequency and duration of staff meetings. Most staff meetings are "tell me about your summer vacation" discussions and can be made much more efficient with some simple structuring and preparation. Also, finding more time requires effective delegating. If you don't have the type of staff that can handle day-to-day tactics, you may need to do some organizational surgery.

Q: I read your column with interest. I recognize some of those mistakes and tendencies in myself. How do I break the cycle? How do I get in the game when I am not invited to play?

A: Awareness is a key part of breaking the cycle. If the column gave you a queasy feeling, convert that anxiety into information, conviction and action by getting some honest feedback from your customers and staff. Have someone neutral ask your stakeholders to rate your performance on six dimensions of IT effectiveness:

1. Defining and communicating a shared IT vision, strategy and tactical objectives.
2. Delivering results on time and on budget to meet business needs.
3. Helping the business realize value from IT investments.
4. Fostering good relationships (with clients and subordinates, for example).
5. Building and leading a strong, credible organization.
6. Developing quality solutions.

Q: I have just been named CIO in an organization where I have been interim CIO for the past year. This naming was done beyond my control and was timed to correspond with a reorganization and severe budget cuts that will cut significant services. I want to emphasize value on investment as we go forward, but I am afraid that I will have a reputation for ruthless or unreasonable cuts right from the start. Any hints?

A: Regardless of the name change, people will assume that you were involved with the cuts. Be a good corporate citizen and talk with everybody about the reason for the cuts. Give the cuts a label that makes the cause for action very clear. For example, if your company is struggling to survive, call the cuts "Pathway to Profitability."

Design a transparent decision process that includes your key stakeholders (internal and external) to determine how to distribute the remaining money and headcount over critical services, products and projects. But don't be too anxious to focus on a broad definition of IT value if in fact your organization is only interested in cost reduction. CIO

To see more reader questions and answers from Susan H. Cramm, go online to *www.cio.com/leadership/agenda.html*. Cramm is president of Valuedance, an executive coaching firm based in San Clemente, Calif. Her e-mail address is *scramm@cox.net*.

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World View

Doing Business Globally

Beware of Anti-Americanism

When rolling out global IT projects, CIOs based in the United States need to navigate both technical and cultural hurdles

BY MELISSA SOLOMON

ATEFEH RIAZI'S QUARTER-MILLION frequent-flier miles are testament to the fact that it's not such a small planet after all. As CIO at Ogilvy & Mather Worldwide, Riazi has spent the past three years rolling out global applications, such as collaborative workflow systems, creative asset management, knowledge management, messaging and security for the New York City-based marketing giant. Most recently, Riazi has been trying to convince the Asian, European and Latin American offices to replace their legacy systems with North America's SAP enterprise resource planning system for finance, human resources and production. A common enterprise system, she says, would provide Ogilvy's 400 offices in more than 100 countries with access to real-time information so that they can make quick decisions, better respond to market changes and cut costs.

Despite impressive business benefits, Riazi wasn't expecting an easy sell. She knows all about the resistance that comes from trying to convince Ogilvy's four regional IT directors and their direct reports to relinquish the legacy systems they had handpicked to meet their specific needs in favor of a standardized platform. She was prepared for the worst.

ILLUSTRATION BY CAREY SOOKOCHEFF

Then the euro came along, magnifying the typical antiglobal, antihomogenization sentiment she's witnessed a thousand times. For many Europeans, the euro was yet another threat to their local identities, so they were particularly sensitive to any standardization efforts, be they at work or at home.

Fact is, globalization adds new dynamics to the workplace, and CIOs who stick to the true-blue American business formula will fail. They must abandon the idea of force-fitting their visions into worldwide offices and move toward a global infrastructure built collaboratively by staff from around the world.

More than Emotions

The heightened sensitivity following the euro subsided quickly, says Riazi. But it illustrates how easily emotions can affect the workplace, especially when dealing with global projects where it's not just individuals interacting but representatives of entire

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What Business Demands

nations. Take the international battle lines drawn over the U.S.-led war in Iraq. Or the ripple effects at worldwide stock exchanges after the latest corporate scandals. What effect do international affairs—be they political, social, cultural or personal—have on companies' global IT efforts? And what, if anything, can IT chiefs do about it?

To work effectively in a global environment, you first need to understand the dynamics at play. Antiglobalization isn't just about misplaced emotions, says Christopher Bartlett, professor of business administration at the Harvard Business School in Boston and author of *Managing Across Borders*. Standards often leave managers little wiggle room to make the right choices for their businesses.

The real challenge is convincing local offices to see themselves as part of a global network.

Take the company that rolls out a global system with high-bandwidth requirements. That system might not be feasible for IT directors in the Middle East or parts of Asia, where the cost of bandwidth is higher than in New York. Is the standardized system multilingual? Can it convert different currencies? Can it accommodate complex national tax laws?

Standardization also gets a bad rap because it tends to come with various administrative checks to ensure everyone's following the game plan. As a result, managers get saddled with busywork that distracts them from their real jobs, says Bartlett.

Getting Local Support

George Savarese, vice president of operations and technology services at New York City-based MetLife, says international affairs, such as the war with Iraq or the aftereffects of Sept. 11, haven't affected his global projects. That's because MetLife is following an inclusionary approach to global IT.

Savarese is on a two- to three-year quest to roll out common technologies, such as underwriting, illustration and insurance administration systems to MetLife's 13 affiliates in Asia, Europe and Latin America. Rather than starting from scratch, his team is identifying best practices and technologies from different countries, piecing them together into a global infrastructure, then working with various vendors to customize about 20 percent of the systems to meet local needs, such as languages, laws and regulatory requirements.

Whereas Ogilvy is just now trying to get buy-in from global offices, MetLife has already sold the idea internationally. MetLife's worldwide offices don't see these global systems as mandates from headquarters but rather as powerful systems selected by worldwide representatives that can be implemented at a lower cost and quicker pace, says Savarese.

Another factor contributing to the success of MetLife's global strategy is that someone other than Savarese did the selling. With Savarese, MetLife International's chief administrative officer developed the plan and sold it to the executive committee.

When it comes to get buy-in on global projects, it's a mistake to put that job into the CIO's hands, says Doug Lynn, vice president and research analyst at Stamford, Conn.-based Meta Group's Executive Directions division, which consults global CIOs. It's the job of the U.S. business-unit leader to sell projects to his international counterparts. "You're going to get saddled with it," Lynn warns IT executives, "but it's not your job."

For global projects, working virtually is critical, but it's also one of the biggest challenges. "You're dealing with different languages, different cultures, different time zones," says Savarese. His 6 p.m. Monday meeting, for instance, falls at 8 a.m. in South Korea and 9 p.m. in Brazil. But, Savarese adds, the telephone and e-mail alone won't cut it. "You really have to be there, in their space, understanding where it's at," he says, adding that he spends about half of each month abroad.

Meeting local managers face-to-face is a first step, but the real challenge is convincing local offices to see themselves as part of a global network. A CFO can argue that a smaller system is more cost-effective for a local office, but the trick is to get him to consider what's best for the corporation as a whole.

"Globalization challenges your people skills every day," says Ogilvy's Riazi. For instance, workers in the United Kingdom often rely heavily on qualitative research; they take their time in making decisions, as opposed to Americans, who tend to be action-oriented, says Riazi. So in a recent attempt to get offices in the United States and the United Kingdom to collaborate on a common system rollout, Riazi hit a wall of resistance because she didn't spend enough time going over analytical arguments with the people in the U.K. office.

Having international teams run global projects goes a long way toward mending fences. Ogilvy, for instance, manages a financial reporting project out of Ireland. "The IT director there has a European point of view, so we're not going to be blindsided by something that isn't a workable solution," she says.

"We have let control go," she says of Ogilvy's New York headquarters. "A lot of global companies cannot let go of that control. They're holding so tight. It's destructive."

Contact Senior Editor Megan Santosus via e-mail at *santosus@cio.com* with any global IT questions. Melissa Solomon is a freelance writer based in New York City. She can be reached at *melissasolomon7@hotmail.com*.

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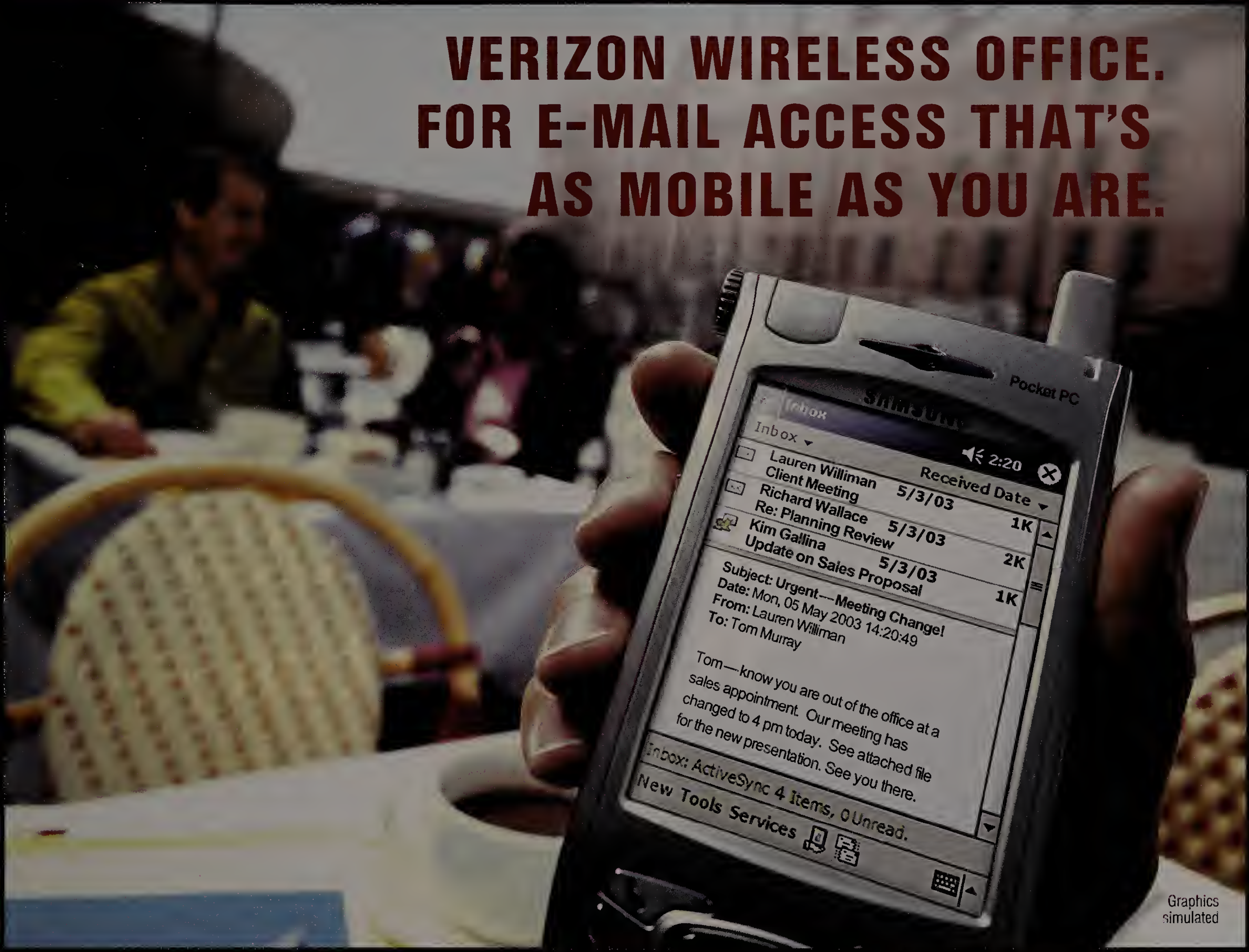

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Emerging technology

INNOVATION *and* **PRODUCTS** *in the* **VANGUARD**

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Creative Management

Intellectual property asset management tools help businesses get a handle on mind-based products **BY JOHN EDWARDS**

THEY MAY CONSIST ONLY OF WORDS, numbers, sounds or pictures, but for a growing number of enterprises, works of intellectual property (IP) have become essential assets.

"As much as 80 percent of top-performing global companies' market capitalization is driven by intellectual assets," says Gartner IP asset management analyst Debra Logan. And just as General Motors must manage its inventory of dashboards, wheel covers and seats, so must a

Edited by Christopher Lindquist. Send your thoughts and ideas for future columns to clindquist@cio.com.

Intellectual asset management...DNA computing power...Spatial Web

ILLUSTRATIONS BY ANDREW STEWARD

publisher such as Simon & Schuster get a handle on its various book-related assets, including content, cover art and author photos. "We require a digital asset bank," says Senior Vice President and CIO Anne Mander.

Simon & Schuster, like other companies with gobs of mind-generated assets, needed a way to organize and distribute its IP. The company found the answer in IP asset management software.

Unlike standard asset management applications, which are primarily geared toward handling physical objects, IP asset management tools are designed to accommodate intangible intellectual materials that can be utilized in numerous ways and are often surrounded by a host of legal, financial and regulatory issues. And unlike ordinary document and content management programs—which let users find, access, share, reuse, distribute and archive information—IP tools provide a variety of other capabilities, such as legal status monitoring, licensing and royalty tracking.

Media companies aren't the only ones that need IP management software. Companies in such diverse industries as pharmaceuticals, aviation and beverage production can benefit from the technology, says Jim Murphy, senior analyst at AMR Research. "A lot of effort [in these fields] goes into R&D types of issues," he says. "Pharmaceuticals, for example, need to do drug discovery." Clinical trials and related testing procedures generate lots of information that needs to be organized, managed and utilized by numerous enterprise divisions. "It gets pretty complicated," Murphy says.

Out with the Old

At Simon & Schuster, IP asset management software replaced a home-grown archival system. "We had a full-time archivist who basically policed it and made sure that everybody got the proper copy," says Mander. The publisher's new Teams Digital Asset Management software, developed by Artesia Technologies, provides a centralized way to organize, manage and distribute book content, cover art, marketing materials and other collateral resources. The software also lets companies extend branding, promotion and comarketing by automating the sharing, licensing and distribution of digital assets and promotional materials.

Simon & Schuster began rolling out the "digital asset bank" across its various publishing divisions throughout 2001. The system works across platforms, providing a common user interface that helps more than 500 employees find and use the most recent version of various IP assets, even while those materials are still under development.

In this era of proliferating content delivery channels, Simon & Schuster has become more aware of its IP's value. That wasn't always the case. "When I first came into trade publishing, about eight years ago, nobody put much value on the content," says Mander. "Probably the only version of the printed copy was at the printers, if you were lucky."

In the not-too-distant past, with only rare exceptions, publishers forgot about a book once it had finished its print run. Today, with the arrival of e-books, print-on-demand and other publishing technologies, it pays to have content and related materials within easy reach. "What people used to do was order another copy of the physical book, scan it and send it off to whomever," says Mander.

IP asset management tools are designed to accommodate intangible intellectual materials.

Tech Outlook

Technology Intellectual property asset management tools.

Anticipated benefits Improved organization, management, acquisition and distribution of IP assets. Enhanced efficiency, better security and lower distribution costs. Depending on the specific product, users may also be able to take advantage of valuation, accounting, audit control, patent tracking, decision support, and analytical and reporting tools.

Hurdles Finding the IP asset management software that best matches an enterprise's specific IP management needs. Time spent inputting IP asset information into the system. Training employees and business partners to use the technology.

Primary markets Media, pharmaceutical, manufacturing, telecommunications, chemical, oil and gas, automotive, and other enterprises that generate or receive large amounts of IP content. The technology is not often used by enterprises in financial services, retail, construction and other fields that utilize few IP assets.

Estimated cost $1,500 to $35,000, depending on the number of users.

Vendors

Applied Information Management (*www.aim-harpoon.com*): Harpoon software.

Artesia Technologies (*www.artesia.com*): Teams Digital Asset Management software.

Halo Solutions (*www.halosol.com*): IPDOX software.

PLX Systems (*www.plxsystems.com*): PLXware software.

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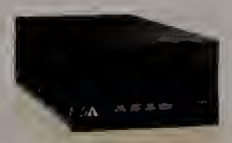

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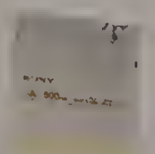

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With its new software, Simon & Schuster can transfer books and related materials to a new medium without touching the hard copy.

IP asset management software lets editors, art directors, lawyers and others more easily access book assets and handle legal and financial matters. But for marketing staff, the software can work like an ordinary content management tool. "Our remote sales force has access to it," says Mander. "If they're going to a customer tomorrow, and they want to pull together a one-off marketing piece, they can."

Cost Considerations

Although IP asset management's benefits are obvious, it can be difficult to pinpoint an ROI. That's because most of the technology's benefits are aimed at boosting efficiency, which can be difficult to measure.

The cost of IP asset management software also varies widely, depending on a product's capabilities, number of users and other factors. PLX Systems, for example, offers several modules for prices starting at about $20,000 per year. Halo Solutions' IPDOX software, on the other hand, is available on an ASP model at annual fees starting at $1,500 for a license for one to 99 users. Still, users claim it pays off. "I'm sure that we're more efficient, and we know we've saved money on physical distribution of hard copy materials," says Mander.

Besides allowing easier recycling of published works, IP asset management software can reduce costs by lessening the need to rely on external service suppliers. "For example, the author photos used to be held by an outside service," says Mander. "Now we have them in our digital asset bank, so we save money."

For example, NorthPole USA can track its own trademarks and patents for the first time using IP asset management software. "Before, we just relied on outside counsel to report to us on the status of the trademark or patent," says April Meng, a NorthPole intellectual property specialist. The company uses IPDOX to handle trademark and patent applications, administration and maintenance.

Another important benefit provided by IP asset management software is enhanced security. Assets stored inside filing cabinets or on desktop computers can easily walk out the door. By placing assets on a secure server, enterprises can ensure that confidential information remains protected. "It certainly helps me sleep at night," says Mander.

Targeted Markets

Given the specialized needs of their customers, most IP asset management software vendors focus on either specific tasks or vertical markets. Artesia, for example, offers versions of its Teams software tailored to enterprises including publishers, advertisers, broadcasters and government agencies. Applied Information Management, on the other hand, focuses its Harpoon software on TV and film distribution companies. The organization offers separate applications for accounting, program acquisition, advertising sales, pay TV and pay-per-view contracts, home video distribution, residuals payment processing and distribution licensing.

Regardless of the type of software used, involving users in the planning of an IP asset management system is vital to the project's ultimate success.

Several vendors approach the IP asset management market by zeroing-in on one or more facets of IP asset management that appeal to a wide range of enterprises. IPDOX software, for example, allows corporate and external attorneys, R&D managers, government clerks and other interested parties to view and exchange relevant information regarding the status of various IP assets. PLX Systems, meanwhile, offers several different software modules that are designed to handle an array of tasks. The company offers PLXware, a suite designed to provide portfolio management, valuation analytics, accounting, audit control, decision support and reporting tools for IP assets owned by various types of enterprises.

Regardless of the type of software used, involving users in the planning of an IP asset management system is vital to the project's ultimate success. "The best thing we ever did was to recognize that it couldn't be an IT-driven project," says Mander. Simon & Schuster, with the help of consultancy Accenture, interviewed scores of its employees, ranging from top management to end users, to arrive at a comprehensive vision of what the system should include and how it should operate. "To make real use of these products, you've got to have the users embracing it," says Mander.

Gartner's Logan feels that a successful IP asset management implementation requires a partnership between IT and the enterprise divisions that will use the software. With a patent management application, for example, close cooperation between a company's IT and legal units is critical. "You can't actually see the benefits if you're an IT department unless the lawyers are able to tell you what they are, and the legal department

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wouldn't necessarily be able to understand how the technology could help them unless it was explained by IT," says Logan.

Intellectual Hurdles

Perhaps the biggest challenge facing IP asset management software users is getting the property into the system and keeping it organized. "It requires an awful lot of manual labor to be able to sort through all this stuff," says Logan. "Automatic classification software makes mistakes, so you still need at least some degree of human editing." (For more about data classification, see "Sleuthing Out Data," May 1, 2003.)

Enterprises must also take the time to train employees and business partners in the software's use. "It was very difficult in the beginning to get people to grasp the concept because it was new," says Mander. "We had some people complaining that we were making their lives more difficult." Most of these individuals have since reconsidered their views and now believe that the technology is "pretty cool," says Mander.

As more enterprises begin to comprehend the potential value they have locked up in their intellectual assets, IP management software should grow increasingly popular. But this will happen only if CIOs recognize the technology's power, says Martha Amram, an IP consultant and author of *Value Sweep: Mapping Growth Opportunities Across Assets.* She believes that CIOs, already comfortable with tangible business operations, need to take a proactive role in helping their organizations gain added value from what are essentially ethereal IP assets. "There's an intangible flow going on in your company," she says. "What are its IT needs? It's up to the CIO to make the call." ■

John Edwards is a freelance writer based in Arizona. He can be reached at *john@john-edwards.com*.

UNDER DEVELOPMENT

Molecular computing

Powerful DNA

PORTABLE COMPUTER VENDORS like to boast about their small and lightweight devices. But their best efforts are nothing compared with programmable molecular computing machines composed of an enzyme and DNA molecules.

Now the scientists at the Weizmann Institute of Science who developed a DNA computing device in 2001 have made a powerful new discovery. About two years after professor Ehud Shapiro of the institute devised a molecular computing machine, his team found that the single DNA molecule that provides the computer with input data can also provide all the necessary operational energy.

The fuel for the first device was a molecule called ATP, the standard energy source for all life. But the latest version of the tiny computing device breaks two bonds in the DNA input molecule, releasing the energy that's stored in those bonds as heat. The process produces enough energy to perform computations without an external power source.

Shapiro says the latest discovery—while not as significant as the earlier development that showed the possibility of building a molecular scale computing machine—indicates that rapid developments in the field will bring DNA computing closer to practical applications.

"This latest development throws new light on the relationship between energy and computing," says Shapiro, a professor of computer science and applied mathematics, and biological chemistry. "The fact that you can provide energy and information [from the same source] is something you couldn't dream about with electronic computing. This shows what you can do when you approach computing from a different perspective."

Shapiro says programmable DNA computing devices have potential applications in the medical, biotechnology and pharmaceutical industries. It might be decades, however, before the devices are ready to be used for applications such as research on new medicines. Still, he says, "there are tremendous opportunities made possible by the interface between computer science and molecular biology." *–Bob Violino*

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PUNDIT

Web technologies

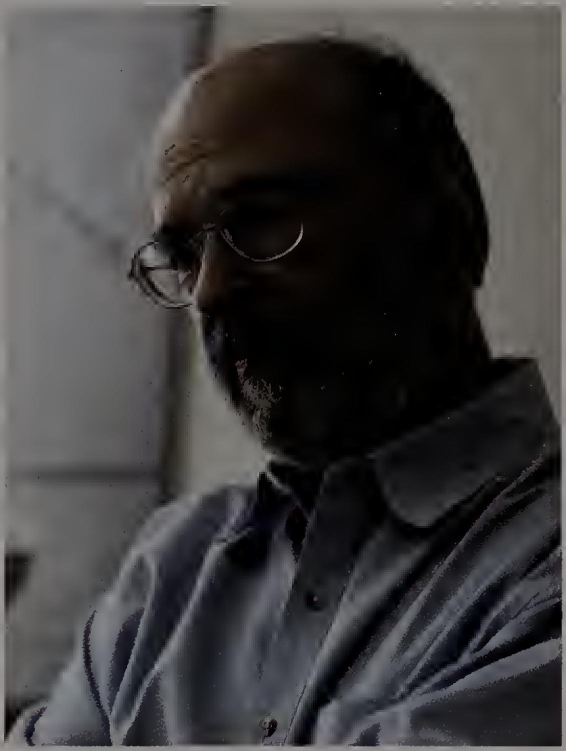
Lessons from Building the "Spatial Web"

Technology is substance, and culture is form

THE OPEN GIS CONSORTIUM (OGC) works to establish interoperability in the complex industry sector that focuses on geography. OGC's members have created an innovative process for communication among geospatial technology users and providers, a process that opens the vast technological richness of this community to a broader set of users. The process also provides an innovative model in which published user requirements directly influence standards and products.

The animus of OGC's process is that interoperability among computing processes that deal with geographic issues is essential if computers are to help enterprises and individuals work with the concept of *place.* Like phonetic speech, maps are old information technology—older, we can assume, than alphabets. Human beings enjoy an innate ability to picture themselves at a high virtual vantage point from which to better see and understand the world.

Interoperable geoprocessing leverages this particular power of imagination. OGC's members use the word *spatial* to emphasize that many uses of digital spatial data don't involve geo-"graphic" representation. An automated phone call to residents near the site of an industrial accident, for example, uses spatial data but doesn't involve a graphic. But clarity, orientation and behavior in many activities require an understanding of where people and things are in space and time. Therefore, a technology that leverages our spatial abilities surely has great significance for human understanding and performance.



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Maps are old information technology—older, we can assume, than alphabets.

–David Schell

Interoperability makes it easier to integrate powerful spatial analysis and display capabilities into tasks. Interoperability also lets data, components and services create a growing market of combinable resources. Though the Web is not the only interoperability platform addressed by OGC, those data components and services are the elements of the spatial Web.

This spatial processing layer on top of the Web is an extraordinary open platform on which to develop commercial and social value. But perhaps more significant than OGC's interoperability platform is the method by which it is being created.

OGC introduces interoperability into a market stunted by ultracompetitive vendors' proprietary marketing and product strategies and by essential differences between types of spatial technologies (such as GIS and earth imaging). The consortium evolved a program of cooperative test beds and pilot projects in which users encourage technology suppliers to develop and test specifications and architectures that solve specific industrywide interoperability problems. This is a fast process.

In 2000, for example, after Environmental Protection Agency reps shared with OGC their dream of real-time environmental modeling based on Web access to thousands of geolocated sensors, it took consortium members just five months to produce SensorML and other Sensor Web components. Vendors promptly implemented the consortium-adopted interfaces and encodings in products to provide users with the interoperability they will demand.

OGC repeatedly shows how technology users can motivate competing vendors to reach agreement on a common interoperability approach. Those technology providers, of course, now enjoy new and expanded markets based on the open, global interoperability platform that supports unprecedented integration of spatial capabilities into information systems.

How might that process impact the evolution of platforms in the larger IT world? We'll see. It works, however, and it solves problems that have always bedeviled IT users. Sophisticated players in the IT community are recognizing that sophistication includes awareness of the need for a shared vision of critical resources—such as the Internet, and also an open spatial infrastructure—that are held in common. CIO

David Schell is president of the Open GIS Consortium (*www.opengis.org*).

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Paul Saffo

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W. Brian Arthur

Citibank Professor of the Sante Fe Institute, shares his views on how IT is being reinterpreted by old, traditional industries—resulting in completely new subindustries such as genomics, proteomics, financial engineering, smart pharmaceuticals, nanotechnology, and the like. They are being born out of IT, and will change our lives and our businesses.

Howard Rheingold

Futurist and Guru of Digital Culture, gives us his observations on the societal impact of the "smart mob" phenomenon. They are able to harness the combination of mobile communications, the Internet and pervasive computing to enable people to interact and cooperate in ways never before possible. We've already seen the changes in the way people meet, mate, work, war, buy, sell, govern and create.

Abbie Lundberg

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EXECUTIVE Summaries

June 1, 2003

COVER STORY
India Outsourcing

By Stephanie Overby | **60**

Anywhere from one-half to two-thirds of all Fortune 500 companies are already outsourcing IT to India, and many would agree that it's one of the best ways to cut application development and maintenance costs. United Technologies and its subsidiaries save $30 million a year outsourcing app development and support to India. The company learned several hard lessons in the process, including the need for an overall outsourcing strategy covering vendor selection criteria, pricing negotiation and choice of what projects to send. Keep some skilled developers in-house if only to ensure that outsourcers don't overcharge. Companies should host project managers stateside and make sure they have the necessary business analysis skills. Outsourcing project-by-project is efficient only up to a point; for a company outsourcing a portfolio of applications, it pays to create an offshore center with a dedicated team. Countering the quick savings in India was United Technologies' transition experience: Knowledge transfer costs time and money. It took four months to develop, document and effect the transition, and one year to recoup the costs.

> **"You don't wake up one day, fire everyone and send it all to India. You have to get comfortable with it, find the right partners and evolve in a way that makes sense for your business."**
>
> –RON BEAVER, CIO,
> UNITED TECHNOLOGIES SUBSIDIARY
> OTIS ELEVATOR

Bioterror Defense

By Sarah D. Scalet | **72**

CAN TECHNOLOGY STOP BIOTERRORISM? Potentially, a sophisticated IT network could transmit and integrate medical data in real-time to public health officials across the country. At present, though, the process often starts with little stacks of cards that doctors fill out, then submit—maybe monthly—to local health departments. Electronic delivery and retrieval is spotty, at best. And diseases that must be reported vary by state. However, national, regional, state and local bioterrorism initiatives do exist. The New York City Department of Health and Mental Hygiene has started collecting information from emergency rooms; it comes in via secure FTP once or twice a day, sometimes just in ASCII format, with about 40 of the city's 90 hospitals participating so far. New York is not alone, but ultimate success will depend on all those disparate systems talking to each other.

Software Maintenance Fees

By Ben Worthen | **80**

MANY OF THE SOFTWARE MAINTENANCE CONTRACTS signed during the booming economy now hang around CIOs' necks like an albatross or, worse, a noose. If an organization wants support, upgrades and patches, vendors demand an additional annual fee averaging 20 percent of the up-front cost. A percentage of those fees is funneled into development of new releases, but much of it goes to shore up the vendor's bottom line. Now is a good time to fight back. IT leaders from Canada Life Financial, Dow Corning, Eastman Chemical and Primedia are among those negotiating better terms up front, renegotiating midcontract and, in some cases, running software without maintenance. Among other negotiating tips: Insist on a fixed rate for maintenance or limit how much the fee can increase throughout the life of the contract.

State IT Budget Cuts

By Meridith Levinson | **88**

BECAUSE OF THE WORST BUDGET SHORTFALLS IN 50 YEARS, state CIOs are under tremendous pressure to identify places to cut without sacrificing services to citizens and ensuring a solid IT foundation to support economic stimulus plans and future growth. CIOs of Florida, California, Texas and Michigan offer a candid look at their strategic decision-making processes. Texas, for example, must cut the IT budget by 7 percent this year and 12.5 percent in 2004. CIO Carolyn Purcell is working with vendors willing to assume the risk she takes on a new product: She doesn't pay the vendor until the hardware or software shows a payback. In the development of the Texas Online portal, vendor BearingPoint assumed the up-front capital investment, and when the state began generating revenue from citizen convenience fees, Purcell paid BearingPoint for its services with that revenue. Purcell says this model of vendor partnerships could work in the private sector.

Case Files: Iowa's ROI Program

By Elana Varon | **99**

IOWA'S METHODOLOGY HAS BECOME A NATIONAL MODEL for documenting value and prioritizing IT investments in the public sector. The program has saved taxpayers more than $5 million since its inception three years ago by enabling officials to combine duplicate projects and flag unnecessary expenditures. New investments are paid for primarily from a pooled technology fund from which the IT department reimburses agencies for vetted expenses. Agency managers must document expected costs and benefits according to a standard set of factors, which the IT department scores on a 100-point scale. The scoring system is weighted toward projects that comply and directly benefit citizens. Case commentator Douglas Hubbard praises the funding controls but says assigning dollar values to project criteria would work better in allowing Iowa to compare value and measure whether it is making better funding decisions.

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